THE EQUITABLE PRICING POLICY

A NEW METHOD OF RAILWAY RATE MAKING

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Government of Alberta
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Edmonton, Alberta
July, 1973

TABLE OF CONTENTS

APPENDICES

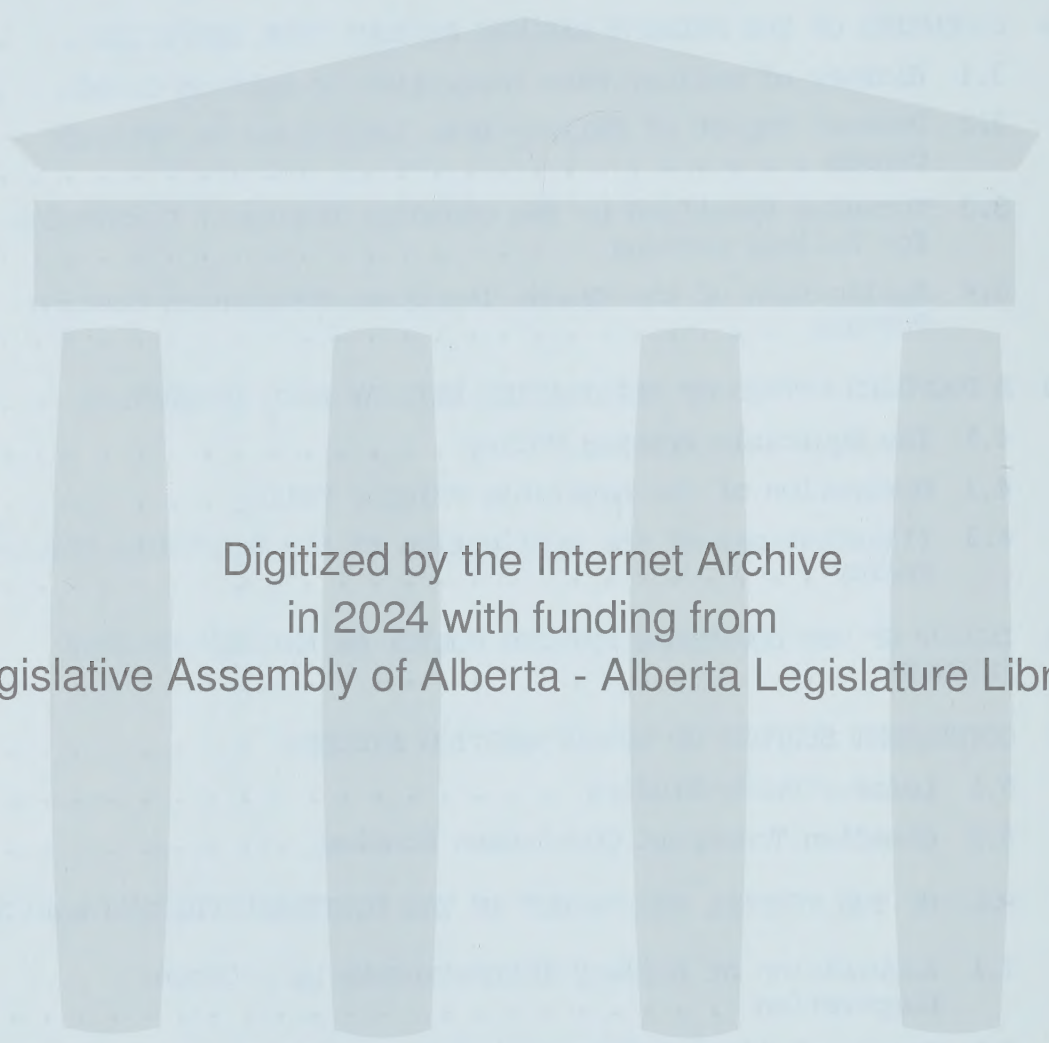## 1.0 SUMMARY

Industrial development in Western Canada continues to be impeded and distorted by the railway freight rate structure. The National Transportation Act of 1967 has been unsuccessful in dealing with a structural problem that is regional in nature. This problem greatly exacerbates the two billion dollar annual trade deficit the West has with the East.

It is proposed that a new method of railway rate making - the Equitable Pricing Policy - be implemented in Canada. The EPP holds that all shippers should be charged equal mile for mile rates which are based upon the type of equipment used, and not the value of the commodity or the lack of recourse to alternative transportation means.

Similarly, all transportation modes should be treated equally. This is not the case today as the Federal Government provides substantially more of the infrastructure for highways, waterways, and airways than it does for railways. Therefore, the difference between total railway costs and total railway revenues accruing under the EPP should be met by the Federal Government to an extent consistent with its support of other transportation modes.

The recommended method of increasing the level of Federal support in the railway industry is the acquisition of all railway infrastructures by a Crown Corporation. This action would eliminate a large cost element from pricing decisions and at the same time, make the railway industry a truly competitive one. Infrastructures would be like highways, open to any operating company demonstrating capability and competence. Furthermore, the question of line abandonment would no longer be in the railways' hands.

The EPP can be implemented immediately by amendments to the National Transportation Act of 1967. It is recommended that it be monitored and controlled by a Burden Study that shows costs for equipment movements, as is done by the Interstate Commerce Commission in the U.S.

The economic consequences of the EPP will be very beneficial to all regions of Canada. The EPP will create industrial and manufacturing specialization by allowing the free interchange of goods and services. Some small industries serving local markets may at first be adversely affected. They should be assisted from a special equalization fund to make the transition to an export oriented operation.

2.0 INTRODUCTION

Transport costs and services have exerted a profound influence on the economic development of Canada and its various regions. They will continue to do so. The railway system is the basic means of transport and other modes fashion their service and charges on the railway model. This is unlikely to change.

In Canada's early history, the railways charged the shipper all the traffic would bear and the shipper paid because there was little alternative. The shipper did, however, see the advantage of competition and, where possible, the government was encouraged to improve waterways, build canals and roads, and in other ways create competition. The railways responded to competition by lowering rates, which left the high rates concentrated in the non-competitive areas of the country; i.e. in parts of the Maritimes, Northern Quebec and Ontario, British Columbia, and the Prairies. Because these areas had high transport costs, they became less attractive for many kinds of industrial development, and this fact in turn made the possibility of effective transportation competition even more remote.

By 1960, the plight of the captive (i.e. non-competitive) shipper in Canada was acknowledged. The National Transportation Act of 1967 recognized some of the advances that had been made in transport costing procedures and promised some relief to the individual shipper. However, the general problem, which was regional in nature, was still ignored. This study deals with the problem of railway transport pricing in Canada from a national and a regional standpoint. In essence, it takes presently accepted cost concepts, legislation, and transport theory and combines them into a new pricing system that:

- is Canada wide in its application;

- is fair to the carriers;

- removes the present freight rate discrimination; and

- gives all areas of Canada an equal transport price opportunity.

3.0 EVOLUTION OF THE PRESENT RAILWAY FREIGHT RATE STRUCTURE

Railway rates traditionally have been based upon what the railways have estimated is a shipper's ability to pay, and not upon what it costs to provide a particular transport service. Therefore, anomalies exist in the present rate structure that inhibit rational economic activity and development. For example, some products shipped from Ontario to Vancouver and then back to Alberta are charged less than if the same product on the same train had been dropped off in Alberta on the way through. Skelp is charged $2.11 per hundred pounds when shipped from Hamilton to Edmonton, but if it is sent direct to Vancouver, the cost is only $1.35 per hundred pounds. Iron and steel from Toronto to Vancouver costs only $1.68 while from Toronto to Saskatoon it costs $2.47.

Livestock from Brandon to Toronto costs $2.44 per hundred pounds while fresh meat costs $3.23. Grain from Saskatoon to Moncton costs only $0.92 per hundred pounds while millfeed costs $1.62.

The overall effect of these types of rate anomalies in a region that has limited transportation alternatives is to prevent the establishment and operation of secondary industrial activities. This has been the situation in Western Canada since 1881, and it continues today, almost a century later.

3.1 History of Railway Rate Inequities in Western Canada

Western Canadian Railway freight rates developed initially from the mileage scales used in Eastern Canada, but were set at substantially higher levels to compensate for what were assumed to be higher costs. By 1914, a system of tolls and charges for traffic between Eastern and Western Canada

had developed. It contained a large number of anomalies and discriminations and, although Western rates were higher than the rates for similar mileages in Eastern Canada, the Board of Railway Commissioners (BRC) found, in the Western Rates Case, that they were not unreasonable nor unjust.

Complaints about the freight rate structure continued to be voiced by shippers and public bodies concerned about the welfare of the West, and in 1925 the Federal Government directed the Board of Railway Commissioners to examine the basis of the freight rates. In their judgment of August, 1927, they found no reason to order any substantial changes and in effect confirmed the findings of the previous decade. The major issues at that time were:

- railway rates that were higher for shipments from Toronto to Calgary (for example) than for Toronto to Vancouver. In some instances, the Toronto to Calgary rate was twice the Toronto to Vancouver rate. This was known as long and short haul discrimination;

- Railway rates which were 25% more to ship from Alberta to British Columbia than to move those same goods equal distances in the opposite direction, from Alberta to Saskatoon or Manitoba. This was known as the Mountain Differential;

- railway rates which were more to ship in Alberta, Saskatchewan, and Manitoba, than to ship the same goods a similar distance in Ontario and Quebec;

- railway rates which invoked an assumed mileage on traffic from Port Arthur and Fort William to Winnipeg and beyond, even though the effect of the assumed mileage gave Winnipeg a very great distribution point advantage over Alberta cities;

- railways rates having a lower basis in the East than the
  basis of rates from the East to the West;

- railway rates in the Toronto-Windsor-Montreal area considered
  as one origin for purposes of shipping to the West, while
  at the same time points separated by even less than twenty
  miles in the West had different rates.

Following the General Freight Rate inquiry by the Board in 1925,
there were a number of isolated hearings on particular freight rates. There
was also a half-hearted effort by the Rowell-Sirois Commission to come to
grips with the problem, but it was not until the first post-war Increase
Case (1948) that the question of the discriminatory nature of Western
freight rates was again brought to the fore. Incidental to the Increase
Case, the Board of Railway Commissioners in 1949 completely removed the
Mountain Differential. This was the only effective relief from dis-
crimination that the West ever received from the BRC.

In response to rising portests from the West, the Federal Government
appointed a Royal Commission in 1949 (The Turgeon Commission) to examine
the freight rate structure. Led by Alberta, which made a strong plea
for reasonable freight rates for the West, this Commission recommended
changes which virtually eliminated the causes of the West's longstanding
disenchantment with the railway freight rate structure. In particular,
the Commission dealt with:

1.   Long and Short Haul Discrimination

The Commission recommended the One and One-Third Rule
which restricted the ability of the carrier to overcharge the
intermediate point on transcontinental shipments. For the first
time, the Alberta shipper and received of freight from Eastern

Canada received a more reasonable rate and more equitable
treatment. Unfortunately, a legal maneuver made this
equitable treatment shortlived and within a year, by using
the Agreed Charge mechanism, the carriers circumvented the
Rule.

2. Rate Equalization

A single rate scale was to be applied to all of Canada.
By this means east-west rate differences, the terminal tariffs,
and special geographic privileges were all abolished.

3. The Distance Factor and Economic Power

The Commission recommended a special subsidy to reduce the
cost to the shipper of maintaining the east-west land line. At
the same time, the necessity for improved cost information to
enable all rates to be on a more factual basis was recognized.
This would help reduce the selective locational impact of
Transportation.

The Turgeon Commission findings were a great victory for the West,
but it was shortlived. The rapidly rising costs of rail operations,
coupled with the poor economic performance of the rail carriers in the
last half of the 1950's, again moved the Federal Government to appoint
a Royal Commission. This Commission, the MacPherson Commission, after an
extensive study, concluded that the railways ought to be encouraged to
operate as competitively as possible. If the Government, as a matter of
national policy, wanted certain services to be maintained, or certain
activities undertaken, these services or activities should not be a burden
on either the railways or the shippers. Additionally, the Commission
concluded that the railways should be free to set freight rates by a process
of negotiation. If a shipper did not like the rail rate, he could use a

competitive highway, waterway, pipeline, or airway. If the shipper
did not have such alternatives, he could declare himself captive to
the railways, and the Canadian Transport Commission would establish
a rate for him.

The MacPherson Commission in effect recommended that freight rates,
except in rather unusual circumstances, should not be circumscribed by
legislative restriction.

The National Transportation Act of 1967 gave effect to the MacPherson
Commission recommendations. A reorganized and renamed Board, the
Canadian Transport Commission (CTC), was formed. However, this Commission
has been ineffective in dealing with the basic issue of railway rate
problems. In the area of railway transport, it has been more preoccupied
with railway safety investigation, passenger train curtailments, and
branch line abandonments, that with the task of ensuring that the railway
systems are serving Canada's needs, rather than impeding rational
economic development.

3.2 Present Impact of Railway Rate Inequities in Western Canada

Canada is the only country in the world that allows long and short
haul discrimination to persist. The economic consequences are well known.
The high rates to intermediate points tend to provide a protective barrier
against outside competition to local manufacturers, but this is likely to
be a very temporary thing. At the same time, these high rates impose an
intolerable competitive burden on industry that draws its supplies from
outside the region. It is agreed by virtually all impartial observers
that the net effect of long and short haul discrimination upon the inter-
mediate area is very detrimental. Long and short haul discrimination is

today costing the people of Western Canada more than eighteen and one half million dollars per year in direct and supplementary charges. There should be no hesitation in taking strong and concerted action to assure the permanent removal of this costly freight rate discrimination. Long and short haul practice permitted on transcontinental traffic remains the most severe penalty to developing a strong Western secondary industry. At present, there is no effective way of reducing or eliminating long and short haul discrimination without action by Parliament.

The lack of freight rate groupings in the West has historically exerted a selective effect on the location of industry, while the railways have, through independent action, largely removed that selective effect in Central Canada. Virtually the whole of Ontario and Western Quebec is considered as one origin on freight shipments to or from the West. In the West, small mileage differences between localities produce freight rate differences which are large enough to be significant cost factors to a manufacturer.

The absence of industrial rate groups in the West seriously impedes the geographic dispersion of industry and provokes higher costs in the smaller population centres. In Central Canada, the same rate applies from Montreal or Toronto on a shipment to the West. On the receiving end, Claresholm pays more than Calgary and Fort Saskatchewan pays more than Edmonton. This unwarranted difference in treatment between East and West should be eliminated immediately.

Freight rates exert an impact upon the location of economic activity because of weight and volume changes which occur during the manufacturing or processing of raw materials into products. Rates thus usually encourage the concentration of industry at large population centres in Central Canada, or in a foreign country, instead of where the raw materials are located.

Western Canada has traditionally been a producer of raw, unprocessed, and unfinished materials. The railways have maintained freight rates that continue to make raw material export instead of finished products export an attractive opportunity.

The Prairies and British Columbia combined have an annual net Canadian inter-regional trade deficit of more than two billion dollars in manufactured goods. This figure simply means that more than 100,000 jobs in the manufacturing industry are created in Ontario and Quebec to take care of the net Western Canadian demand. The manufacturing industry in the West is geared only to serving local markets, except for the forestry industries of British Columbia. Railway freight rates combine with tariff policy and Canadian National Policy to maintain the historic economic dependence of the West as a captive market for Central Canadian industry.

As the economy of the West matures, it is increasingly important to develop economic activities that will sustain high levels of employment within this region. Unless it is prepared to export people, the West must stop exporting raw materials in an unprocessed and unfinished state. Central Canada cannot reasonably expect to continue to have a two billion dollar trade surplus in manufactured goods. Raw material must be processed and transport rates must be adjusted to reflect that legitimate and desirable objective. Industrialization takes place by a series of reasonable steps, but it is quite clear that a deficit of 100,000 jobs indicates a serious lack of progress.

The National Transportation Act (NTA) of 1967 was an attempt by the Federal Government to make a fair rate structure for Canada. The underlying

objective of the NTA was the creation of an environment that would enable competition to flourish between all modes of transportation. From the standpoint of the West and several other parts of Canada, the NTA has not succeeded. It has failed because it has left the overhead costs of the national railway system to be paid mainly by those areas that do not have a competitive transportation environment. Competition has been created by large federal expenditures for waterways, airways, and highways, while the full burden of railway overhead is on shippers who have no alternative way to move their products.

It is neither just nor desirable, and as such should be no longer tolerated. The present system of railway pricing is undesirable because it:

- does not accurately reflect the costs of operation;

- inhibits the free movement of goods, given equal factors of production and consumption;

- distorts the location of secondary industry;

- creates discrimination against some regions in Canada;

- and, most importantly, it makes Canada a less effective economic unit by preventing those social and physical capital resources from combining to do those things that they do best.

3.3 Formulas Specified by the Canadian Transport Commission for Railway Costing

Under the National Transportation Act of 1967 the Canadian Transport Commission was required to presecribe, for statutory purposes, the items and factors relevant in the determination of railway operating costs. In 1969, the CTC issued Costing Order R-6313 which prescribes regulations

respecting costs for the purposes of the following sections of the
National Transportation Act: Section 314-A to 314-J (dealing with line
abandonment); Section 317 (dealing with less-than-carload rates);
Section 329 (dealing with grain subsidy to eastern ports); Section 334
(compensatory freight rates); Section 336 (maximum rate standards in
terms of variable costs); and Section 387 (the determination of costs
incurred). The relevant Sections of the Order are included in Appendix A.

Section 5 of the Order defines costs for the purpose of setting
rates for the carriage of goods. Specifically, Section 5 defines costs
as variable costs to be broken into the two sub-categories "labour" and
"material and other" costs. In addition, Section 5, subsection 2, specifies
that there shall be included in the variable costs an allowance for cost
of capital.

In view of the statement made in Section 5(1) of Order R-6313,
namely that costs shall be variable costs, an initial point of discussion
at the prehearing meetings was to define what is meant by variable costs.
After consideration of all evidence and the discussion of variable costs,
the CTC accepted as a definition of variable costs the following:
"Variable costs may be defined as the long-run marginal cost of output
being the cost of producing a permanent and quantitatively small change
in the traffic flow of output when all resources cost inputs are optimally
adjusted to change." In addition to this definition, note is made that
variable cost may, in special cases, be considered as the short-run
marginal cost of output being the cost incurred for the movement of
specific non-recurring traffic over a limited period of time.

The specific factors which go into the calculation of variable
cost are depreciation, cost of capital, depreciation of freight cars,

fuel costs, multiple unit yard switching, general overhead expenses, road
locomotive costs, roadway maintenance expenses, and train costs. Each
of these factors is discussed below and the finding and decision of the
CTC is specified.

1. Depreciation

Depreciation is included in cost submissions relative to
applications to abandon branch lines; to discontinue passenger
train services, and for other purposes pertaining to rates for
the carriage of goods. The provision for depreciation is to be
in accordance with its classification as an expense under the
Uniform Classification of Accounts prescribed for Canadian
railways. The general instructions of the classification provide
the following:

a) There shall be charged monthly to expenses or other
appropriate accounts amounts which will approximate the loss
in service value of depreciable property not restored by current
maintenance or recoverable by insurance;

b) The amounts to be charged will allocate the service
value of the property (which is its cost less its estimated
salvage value) over its estimated service life.
The service life is defined as the period of time between the
installation of the property and its retirement for accounting
purposes. In determining the amount of the monthly allocation,
consideration may be given to other pertinent factors such as
annual variations in use, increasing obsolescence, or inadequacy.
Under the Uniform Classification of Accounts, the assets in
respect of which depreciation is to be charged are listed under

the property accounts. Detailed studies have supposedly
been conducted by the railways in order to determine average
rates for groups of assets within primary accounts.

2. Rate of Return on Capital

In view of certain elusive factors which apply to rate
of return on capital considerations, the CTC decided that it
would be unwise to prescribe the specific rate of return.
However, general principles were established by way of guide-
lines for the computation of an appropriate rate of return.
Pages 70 and 71 of the Reasons for Judgment which indicate
the five guidelines which were laid out by the Commission are
given in Appendix B.

3. Freight Car Depreciation

The findings of the CTC with regard to freight car
depreciation caused them to make the following declaration:
both railways should allocate freight car depreciation on the
basis of car days and car miles. The percentages should be
80% car days and 20% car miles. That is, 80% of freight car
depreciation is time oriented and 20% is use oriented.

4. Fuel Costs

Pending further research by the railway companies, the CTC
suggested that each railway company continue to use its current
method to calculate the cost of fuel. The Canadian National uses
an engineering technique known as the Davis Formula, while CP
Rail's method is based on statistics of actual fuel consumption
per thousand gross ton miles for each train run.

5. Multiple Unit Yard Switching

The CTC recommended that both railways calculate the yard switching costs on the basis of multiple locomotive units in yard switching and thereby develop a separate unit cost for this purpose.

6. General Overhead Expenses

This expense category included the following overheads:

- Joint facility and equipment rents;

- Other railway taxes;

- Traffic expenses;

- General expenses;

- Communication expenses;

- Non-revenue freight expenses.

The problem in developing unit costs for most of these expenses lies in converting the long-run variable cost into numbers which can be assigned to the individual traffic movements. The CTC recommendations for calculating expense in each of these categories are as follows:

a) Joint facility and equipment rents - The recommendations were that joint facilities and equipment rents should be excluded except when individual cases indicate that they be used.

b) Other railway taxes - These include real estate taxes, provincial taxes, the company portion of unemployment insurance, the company portion of Canada Pension Plan or Quebec Pension Plan. Pending further studies, the CTC recommended that the railways should allocate railway taxes on the same basis as road property accounts for cost of capital calculations.

c) Traffic expenses - Traffic expenses include soliciting traffic, routing and car tracing service, rate negotiation and tariff publication. The CTC recommended that traffic expenses be allocated commodity-wise to reflect the variations in traffic expenses incurred through transportation of the various commodity classes and, further, that it should be based on the revenue on a net ton mile basis.

d) General expenses - The CTC recommended that general expenses be allocated from 60% to 75% variable, with the remaining 25% to 40% fixed.

e) Communication expenses - The CTC suggested that 70% of communication expenses be allocated to variable expenses, the remaining 30% allocated to fixed expenses.

f) Non-revenue freight expenses - The CTC recommended that non-revenue freight expenses be included as a percentage of capital expenditure and material operating expenses.

7. Road Locomotive Costs

Road locomotive costs are developed by applying a basic unit mile diesel rate to five categories of horse power engines.

8. Roadway Maintenance Expenses

The CTC suggested that a five year average for roadway maintenance expense should be used by both railways and that such items as tunnels, bridges, and culverts should be excluded from roadway maintenance expenses.

9. Train Costs

These include such items as train crew wages, train control expenses, other train expenses, and locomotive costs. In this

category, two major problems are involved. One is the averaging of costs in both directions for a given train to account for the possibility of it returning in one direction unloaded, and the other is the difficulty of assigning train costs to particular traffic. With regard to the first problem, the CTC recommended that the averaging of light and heavy direction trips appeared to be a reasonable method of dealing with the problem, in spite of the fact that to a certain extent this creates a burden on the light direction and similarly relieves the burden on the traffic in the heavy direction. With regard to the second problem, that is, the determination of the basis for assigning train cost to particular traffic, the CTC recommended that railways should develop train costs on both a car mile and a gross ton mile basis and apply the appropriate unit according to the individual circumstances of the traffic being analyzed. It also recommended that further studies should be done with consideration given to variables such as car miles and gross ton miles, train switching hours, length of train and length of siding.

3.4 Application of the Canadian Transport Commission Costing Formula

The foregoing discussion of the CTC costing order indicates that essentially the costing formula recommended for the railways can be sectioned into three parts:

1) Cost of Capital

2) Depreciation Costs

3) Expenses (which include some of item 3 and all of items 4 to 9 discussed previously).

Several general comments may be made about costing formulas:

1. The Problem of data collection in a "real world" situation may prelude the breakdown of costs into those varying with output and those varying with time.

2. Other approaches to this type of analysis may yield better insight into the problems that may be encountered in attempting to use this format. The interstate Commerce Commission (ICC) Burden Studies, for example, may suggest some beneficial refinements.

3. Selection and refinement of the costing concept should be made in the light of:

    a) the general economic conditions for any given year and the extent to which these apply summarily.

    b) the availability and comparability of data for different modes.

    c) the selection of transport companies to obtain average figures, in the cases where there are too many firms to consider them all.

    d) careful selection of data to insure, for example, in the case of a company that operates two or more of the different modes, that data for a given mode can be isolated.

4.0 A PROPOSED METHOD OF ELIMINATING RAILWAY RATE INEQUITIES

Canada requires a new railway cost based pricing procedure that recognizes the needs of Canadian commerce today and for the future. The new system should be:

1. based on actual costs of providing services;

2. certain to recognize that users of transport other than rail have received and will continue to receive substantial financial assistance from various levels of government;

3. in conformity with the present costing practices of the carriers;

4. consistent with the declarations of policy in the National Transportation Act of 1967;

5. practical and capable of immediate application;

6. easily supervised and altered as experience requires; and,

7. immediately effective to end regional rate discrimination.

The present railway rate structure must, and can, be changed to help meet Canada's National Goals. It is therefore proposed that a new pricing procedure be incorporated. This procedure is founded upon the basic principle that all shippers in Canada should be treated equally. It also follows that all transportation modes should be treated equally.

4.1 The Equitable Pricing Policy

The proposed pricing procedure for railways holds that the lowest rate charged a shipper should apply to all shippers who use the same type of equipment. Furthermore, the railways should be like the other modes of transport in that the revenue from shippers alone would not cover the total overhead costs. It is proposed that the difference between total charges paid by the rail users and the total cost of the railways should be made up by the Federal Government on a basis that is consistent and equitable

with government participation in meeting the costs of other modes of transport. It is suggested that this pricing method be referred to as the Equitable Pricing Policy.

4.2 Derivation of the Equitable Pricing Policy

The Equitable Pricing Policy (EPP) is based upon the actual costs of providing services. There are two ways that these costs may be determined. The first is by applying the presently accepted costing formulas to the physical movement of particular shipments. This, of course, would involve thousands of commodities moving in a thousand different directions. It would be a very expensive and time-consuming task. When it was completed, it would be time to begin over again, as all the costs would be out of date.

The second method of costing involves approximating long-run variable costs by examining the present railway rate structure. This method is used to develop the rates which would apply under the Equitable Pricing Policy.

The National Transportation Act stipulates that rail carriers must not publish rates which are less than the variable costs of the movement. It follows (as a practical alternative to a cost study), that it would be possible to define a level of rates which is fairly close to the variable cost by taking the lowest rates now actually used by the railways. A general mileage tariff could then be developed. In other words, the lowest rates which are now published by the railways (and which by law are above variable cost) can be used as a practical method of arriving at rates which meet the criteria of being cost oriented and uniform across Canada.

An examination of railway costs indicates that the cost of movement by rail is related more to the type of equipment rather than to the commodity. It has been determined that there are seven basic types of railway equipment (Appendix C). Each of these has a distinctive cost character. It therefore is appropriate to determine what type of equipment is being used and then apply the appropriate rates to the actual mileage travelled. The Equitable Pricing Policy relates the price paid by the rail user to the costs of rail movement and not to the value of the commodity carried in the rail car, nor to the non-competitive opportunities of the shipper.

The application of the Equitable Pricing Policy can be shown by using Hopper Cars as an example. Published railway rates for a large number of shipments in Hopper Cars were examined. These rates were then reduced to a common denominator (rates/ton/mile) by dividing the rate/ton by the distance hauled. These rates/ton miles were plotted as illustrated below in Diagram 1.

Diagram 1

Rate per Ton Mile for Hopper Cars
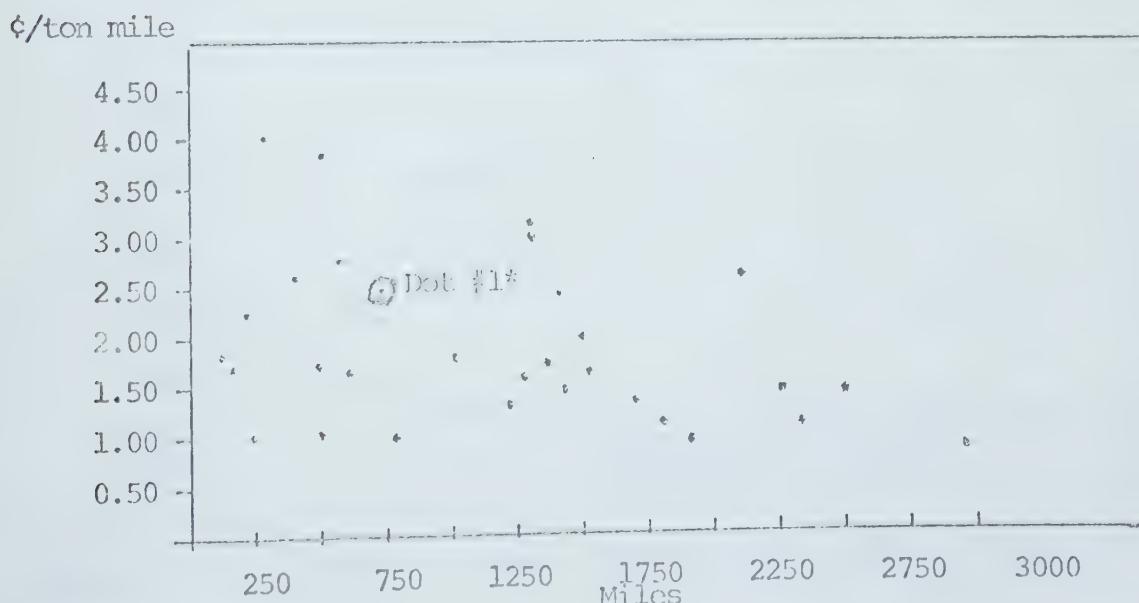
* Dot #1 represents the movement of Soda Ash from Brandon to Thompson at $0.81 per hundred pounds or 2.46¢/ton/mile.

As might be expected, the shipper's cost of each additional mile is less as the haul lengthens, and so, as the hauls become longer, the ton/mile rates decline. As might also be expected, when rates which apply in various parts of the country are compared to one another, there are great differences in the change made by the railways for the same distance.

The railways must, by law, charge rates which cover the variable cost, so that if the lowest rate for each distance is selected, a table can be constructed which will give a series of mileage rates, all of which are above variable cost. This series of rates, when plotted on a graph, gives a continuous line which is herein referred to as a Non-Discriminatory Price Curve. The diagram below illustrates this step. It is the same diagram as the preceding one, except that it is fitted with a curve (the Non-Discriminatory Price Curve) which approximates the lowest points in the field.

Diagram 2

NON-DISCRIMINATORY PRICE CURVE - HOPPER CARS

¢/ton mile

4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50

⊙ Dot #1

Non-Discriminatory Price Curve

Miles   250   750   1250   1750   2250   2750   3000
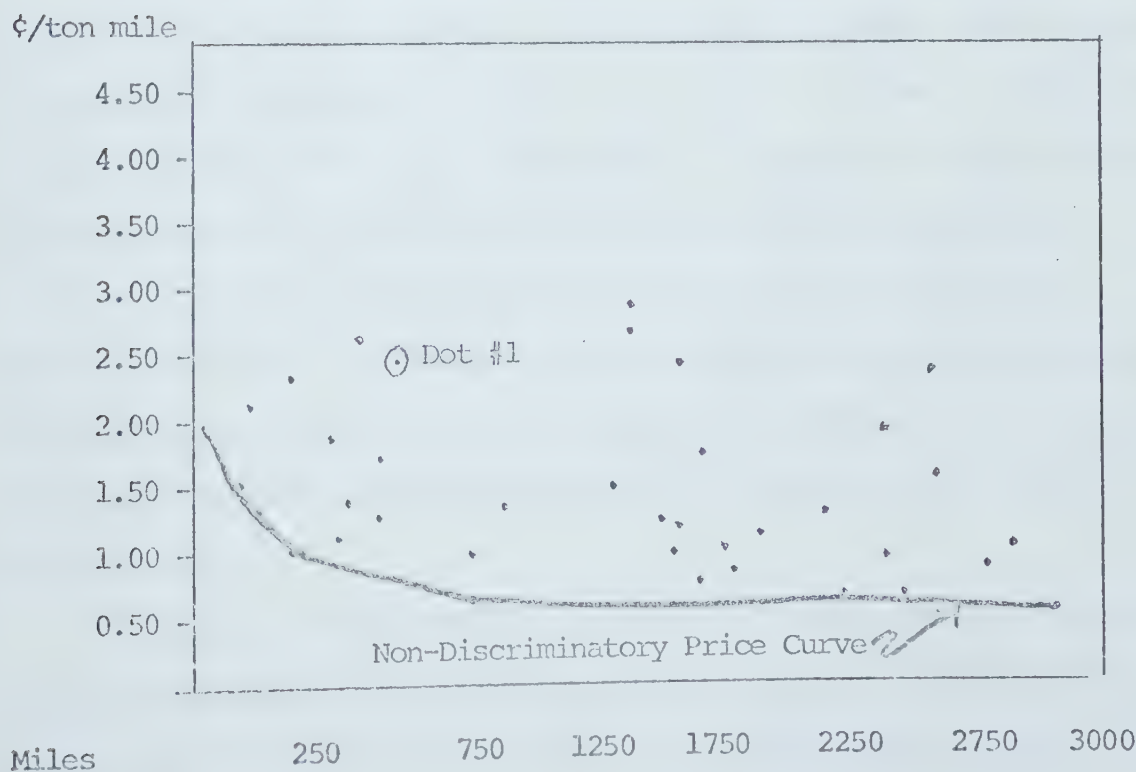
The Non-Discriminatory Price Curve is in effect a diagramatic presentation of a freight rate pricing schedule that conforms to the actual costs of the railway and which includes some overhead, but which is much less than the rates charged in parts of the country where shippers are captive. In other words, this Non-Discriminatory Price Curve meets the requirements of the new Equitable Pricing Policy. The rate represented by Dot #1 in Diagram 1 would now become $0.28 per hundred pounds or .86¢ per ton mile.

To make the freight rate structure in Canada conform to the Equitable Pricing Policy, it would only be necessary to establish the appropriate Non-Discriminatory Price Curve for each of the seven equipment types. It would then be necessary to require the railways to adopt those Non-Discriminatory Price Curves as the maximum permissible rates.

4.3 Illustrations of the Application of the Equitable Pricing Policy

Non-Discriminatory Price Curves for the seven basic equipment types have been developed in the same manner as that for Hopper Cars and are illustrated in Appendix D. Time available did not allow an examination of all the rates existing in Canada today. However, it is felt that the Non-Discriminatory Price Curves, through the judicious selection of rates, come very close to representing the lowest existing level of rates. The Non-Discriminatory Price Curves for Tank Cars and Automobile Tri-levels actually exhausted all the Agreed Charges. The other Curves are composites of Agreed Charges, Commodity Competitive and Non-Competitive Rates, and Waybill data.

It has often been said that the railway freight rate structure has no logical order to it. This characteristic appears at times in the development of the Non-Discriminatory Price Curve and is in some cases

epitomized by Price Curves for light loading cars lying below those for heavy loading cars of the same equipment type. Nevertheless, it is still recommended that the measure "rate per ton mile" be used and not, as might be suggested, "rate per car mile". Rate per ton mile gives cognizance to the two basic variables in shipping - weight and distance. Rate per car mile neglects the weight factor which does affect costs. Furthermore, rates per car mile should not be used for the Equitable Pricing Policy for the following reasons:

- they would encourage railways to give preference to hauling lighter commodities because it would cost less than heavier commodities;

- they would discourage railways from building larger, heavier loading cars (which have large scale economies) because it would be in their best interests to move more cars more miles.

Examples of the application of the EPP for each equipment type are given in the following tables. These tables give examples of particular existing rates and what they would be with the implementation of the Equitable Pricing Policy. Non-Discriminatory Price Curve illustrations for unit trains, solid trains, and car lot movements are not given, but they can be developed in the same manner as the single car curves. It should also be noted that traffic moving under the Crows Nest Pass rates have not been included. These rates have, in effect, been "bought and paid for", and should therefore be left unchanged.

TABLE 1

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION—

HOPPER CARS

Item	Origin	Destination	Total Actual Charge	Non-Discriminatory Pricing Curve Total Charge	Differences in Charges	Per-centage Change
			$	$	$	%
Lime	Joliette	Quevillon	567	306	260	-46
Lime	Joliette	Windsor	260	338	78	+30
Lime	Moosehorn	Regina	630	277	352	-56
Lime	Moosehorn	Flin Flon	1050	412	638	-61
Soda Ash	Amherst-burg, Ont.	Beaupre, Que.	905	612	293	-32
Soda Ash	Brandon	Thompson	1134	396	738	-65
Coal	Bienfait	Dryden	211	288	77	+37
Lead & Zinc Concen-trates	Houston, B.C.	Prince Rupert	416	206	210	-51
Cement	Delson	Sherbrooke	228	133	95	-42
Salt	Thunder Bay	Dryden	543	236	308	-57

TABLE 2

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION -

AUTOMOBILE TRILEVELS

Origin	Destination	Total Actual Charge	Curve Total Charge	Pricing Difference in Total Charges	Difference/ Auto- mobile	Per- centage Change
		$	$	$	$	%
Windsor	Edmonton	1886	1063	823	68	-44
	Vancouver	2120	1346	774	64	-37
	Saskatoon	1318	906	412	34	-31
	Winnipeg	1012	692	320	26	-32
Oakville	North Sydney	1572	615	957	80	-61
	Moncton	1183	484	699	58	-59
	Halifax	1389	549	840	70	-60
	Quebec City	725	437	288	24	-40
Van- couver	Toronto	1176	1256	(80)	(6)	+ 7
	Montreal	1176	1332	(156)	(13)	+13
	Halifax	1786	1639	147	12	- 8
Point Edward	Vancouver	3157	1720	1437	120	-46
	Calgary	2990	1465	1525	127	-51
	Regina	2450	1315	1135	95	-46
	Winnipeg	2093	1101	992	83	-47

TABLE 3

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION -

BOX CARS

Item	Origin	Destination	Total Actual Charges	Non-Discriminatory Pricing Curve Total Charges	Differ- ence in Charges	Per- centage Change
			$	$	$	%
Chemicals	Edmonton	Vancouver	972	569	403	-41
Salt	Unity	Vancouver	1032	670	362	-35
Foodstuffs	Montreal	Calgary	2630	1230	1400	-53
Phosphates	Clarkson	Winnipeg	2040	900	1140	-56
		Edmonton	3150	1179	1971	-63
		Vancouver	2060	1259	801	-39
Ammonium nitrate or urea	Maitland	Timmins	860	460	400	-47
		Sudbury	500	331	169	-34
Electrical appliances	London	Quebec	415	284	132	-32
Electrical products	Prescott	Winnipeg	814	566	248	-30
		Saskatoon	1130	771	359	-32
		Calgary	1224	918	306	-25
		Vancouver	1348	1192	157	-12
Lumber	Vancouver	Edmonton	528	484	44	- 8
		Regina	726	612	114	-16
		Toronto	1122	894	228	-20
		Montreal	1134	915	219	-19
Fertilizer	Hamilton	Cornwall	390	243	147	-38
Lard	Edmonton	Montreal	1236	852	384	-31
Paint	Toronto	Halifax	912	609	303	-33
Liquor	Montreal	Vancouver	2328	915	1413	-61

TABLE 4

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION -

REFRIGERATOR CARS

Item	Origin	Destination	Total Actual Charge	Non-Discriminatory Pricing Curve Total Charge	Difference in Charges	Per- centage Change
			$	· $	$	%
Meat	Calgary	Toronto	2100	1313	787	-37
Meat	Regina	Montreal	1680	1158	522	-31
Meat	Prince Albert	Vancouver	1302	785	517	-40
Frozen Food	Lethbridge	Hamilton	1350	1257	97	- 7
Citrus Fruit	Huntington	Sydney	847	785	62	- 7
"	Huntington	Charlotte- town	714	674	40	- 6
"	Sarnia	Noranda	798	731	67	- 8
"	Sarnia	Hamilton	322	266	56	-17
Meat Products	Calgary	Toronto	1825	1243	582	-32
"	Calgary	Montreal	1825	1347	478	-26
"	Regina	Toronto	1425	965	460	-32
"	Regina	Montreal	1425	1071	354	-25
"	Winnipeg	Toronto	1160	751	409	-35
Meat, frozen	Calgary	Montreal	2500	2370	130	- 5

TABLE 5

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION --

FLAT CARS

Item	Origin	Destination	Total Actual Charge	Price Curve Total Charge	Differences in Charges	Percentage Change
			$	$	$	%
Rough Lumber	Thunder Bay	Winnipeg	496	411	85	-17
Steel Plate	Hamilton	Calgary	2772	1244	1528	-55
		Red Deer	2912	1251	1661	-57
		Vancouver	1568	1568	-	-
		Victoria	1568	1568	-	-
Brick	Edmonton	Thunder Bay	1162	885	277	-24
Machinery	Montreal	Prince Albert	5375	1238	4138	-77
		Thunder Bay	3228	757	2471	-77

TABLE 6

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION -

GONDOLA CARS

Item	Origin	Destination	Total Actual Charge	Price Curve Total Charge	Differences in Charges	Per-centage Change
			$	$	$	%
Pipe Steel	Calgary	Edmonton	344	208	136	-40
Pipe Steel	Camrose	Winnipeg	950	787	163	-17
Wire	Vancouver	Toronto	1940	1887	53	- 3
Iron Scrap	Vancouver	Calgary	1210	689	521	-43
Clinker Cement	Exshaw	Clover Bar	349.50	269	80.50	-23
Sulphur	Home-glen	North Van.	840	693	147	-18
Sulphur	High Level	North Van.	882	869	13	- 2
Lime-stone	Vancouver	Kamploops	364	244	120	-33

TABLE 7

ILLUSTRATIONS OF NON-DISCRIMINATORY PRICE CURVE APPLICATION -

TANK CARS

Item	Origin	Destination	Total Actual Charge	Price Curve Total Charge	Differences in Charges	Per-centage Change
			$	$	$	%
Methy-lene chloride	Sarnia	Clover Bar	3870	2507	1364	-35
Oil foots	Warman	Montreal	1085	988	97	- 9
Sulphuric Acid	Fort. Sask.	Prince Rupert	1190	872	318	-27
Calcium Chloride	Thunder Bay	Flin Flon	728	720	8	- 1
Pet. Products	Toronto	Vancouver	3507	2657	850	-24
Asphalt	Winnipeg	Thunder Bay	735	570	165	-22

5.0 IMPACT OF THE EQUITABLE PRICING POLICY ON RAILWAY FREIGHT REVENUES

The application of a new pricing system to railway traffic should not be an occasion to impair the real financial needs of the railways or of other carriers. On the contrary, it should be viewed as an opportunity to make all carriers stronger and more effective as moves of Canada's commerce. The Equitable Pricing Policy for rail transport is premised upon the proposition that the user of the rail service should pay the actual cost of the shipment of his goods plus something to general railway overhead. The difference between the amount the shipper pays and the total overall cost of the railways should be a charge on all the people of Canada. It should be paid by the Federal Government.

The principle that the various levels of government should contribute to the overhead costs of national transport systems is well established in law, policy, and practice. The National Transportation Act states in Section 1 that "each mode of transport, so far as practicable, bears a fair proportion of the real costs of the resources, facilities and services provided that mode of transport at public expense." The Federal Government has not ensured that the real costs of the resources and facilities are distributed in a "fair proportion" because the infrastructure of the air, marine and road modes of transport are supported by the three levels of government much more than that of the railways. This situation should, in the interests of equity and national interest, not be permitted to continue. The Federal Government should take its fair share of the financial load imposed by a national railway system.

The 1971 Waybill Analysis has been used to estimate the impact of the Equitable Pricing Policy on the gross operating revenue of the railways. The gross decrease in revenue would be approximately $265 million if all rates were placed as close as possible to the variable costs represented

by the various Non-Discriminatory Price Curves presented herein.
The Non-Discriminatory Price Curves may be raised or lowered within a
discreet range to achieve the most desirable balance between user
payments for railway services and payments made by users of competitive
services.

The shortfall in operating revenue should be made up by the Federal
Government. Possible methods of doing so are outlined in Section 7.0
of this report.

6.0 GOVERNMENT SUPPORT OF TRANSPORTATION SYSTEMS

It has been noted that governments play a very large role in providing the infrastructure for airways, waterways, and highways, but not for railways. To obtain an indication of what support these governments do provide, several published studies, public and private annual reports, and statistical data were reviewed.

There were two recent noteworthy studies done on government funding and provivision of transportation infrastructures. The first was carried out by J. C. Lessard and was undertaken on behalf of the Royal Commission on Canada's Economic Prospects (1965). Using this study as a basis, H. L. Purdy (in "Transport Competition and Public Policy in Canada", 1972) expanded the study for the years 1954 - 1965. An attempt was made to calculate all direct costs (those paid by users of the service) and all indirect costs (those paid by public funds). Direct cost to the uses of the mode is the total revenue derived from transport user charges. Indirect costs are operating costs, capital expenditures, and subsidies to carriers from public funds, less the public revenues received. Each was then shown as a percentage of the total costs. In this way, the cost to the public of each mode of transport was identified.

Notwithstanding the necessity of making certain statistical estimates and assumptions, the figures obtained by Lessard and Purdy outline the general situation that exists today relative to public and private transportation costs. These costs for each mode are discussed below.

6.1 Lessard-Purdy Studies

6.1.1. Road Transport

Highway vehicles were segregated into three separate groups (trucks, buses, and private cars) in order to determine the direct cost to users of the facilities. An appropriate annual mileage and cost per mile for each of the classes was estimated.

Indirect costs were determined by the annual expenditure by all three levels of government on the construction and maintenance of roads less the revenue received by governments (such as tolls, gas taxes and license fees). The results were that from 1945 to 1965 Government contributions to roads increased from $32 million to $660 million. As a percentage of total road costs, these contributions increased from 2% in 1945 to 6% in 1965. Details are given in Appendix E.

6.1.2   Aviation Transport

In order to compute the direct cost to users of air services, an estimate of the costs incurred in the operation of privately owned aircraft was added to the reported revenues of the commercial air carriers. The indirect cost was based on operating costs of airway, airports, etc., capital expenditures on airports, and subsidy payments to carriers less government revenues.

The results show that in 1945 Government participation was 70% of the total air transport cost. This level decreased to 28% in 1957 and to 21% in 1965. The percentages, however, vary widely from year to year, depending on the amount of government capital expenditures for airports in that year.

Details of air transport costs are given in Appendix F.

6.1.3   Marine Transport

The revenues of domestic public carriers less certain steam-
ship and Dominion Coal Board subventions were used to compute the direct
costs for waterway transport. Indirect costs include Federal Government
expenditures on harbors and canals, marine services, and the St. Lawrence
Seaway. These studies on marine transport show that Government
expenditures grew from $17 million (7% of total costs) in 1945 to $103
million (22% of total costs) in 1965.

Details are given in Appendix G.

6.1.4   Railway Transport

The direct costs of the railways were calculated as the revenue
paid to the railways by the users, less subsidy payments. Indirect costs
to the railroads were of a special changing character. Before 1957
indirect costs were relatively lower, compared to total costs, ranging
from 1% to 9%.

Later as a result of the Maritimes Freight Rates Act and the
Freight Rate Reduction Act, the railways were required to reduce their
rates in certain areas and cases. The subsidies given to the railways
after 1957 were largely to cover the difference between the normal rates
and the reduced rates.

Another 'special' indirect cost was the subsidy paid to the
railroads for maintaining trackage between Sudbury and Fort William. This
was considered to be unproductive from the railroad's point of view.
These subsidies raised the total indirect costs to 15% of total costs in
1965.

Details of the years 1945 to 1965 are given in Appendix H.

These figures are useful today only in indicating the trend
of Government participation in rail transport. With the passage of
the National Transportation Act in 1967, all of the above subsides, except
for those under the Maritimes Freight Rate Act, were dropped and new
payments related to uneconomical operations were introduced.

6.1.5   Comments on the Lessard-Purdy Studies

These studies show the following results for 1965 (in millions
of dollars):

	Direct Costs (to users of transportation)	Indirect Costs (borne by Government)	Total Costs	Indirect Costs as a Percentage of Total Costs
Air	446	117	563	21
Marine	365	103	473	22
Road	11,086	660	1,746	6
Railway	1,304	229	1,533	15

Although these studies give an indication of the magnitude of
the amounts involved and an indication of the government involvement in
each mode, there are a number of limitations. For example, the significant
feature of the methodology adopted by these two authors is their attempt
to estimate the total cost of each mode of transport. The complications
in such an approach can be well exemplified by the case of roads. While
the actual computation of capital and operating costs of the roadway are
straight forward, such is not the case for user costs. The use of roads
is diversified from commercial carriers to private automobiles. Thus,
there are complications in estimating user operating costs because different
vehicles operate at different costs per output.

Furthermore, the air and marine figures include only the costs
for domestic users. For both of these modes, and especially marine,
foreign carriers would be significant users of these facilities. Another
disadvantage of the Lessard-Purdy studies is that they ignore depreciation
and the value of the dollar in the year of investment. The indirect costs

of the various levels of Government include annual capital expenditures, and not annual depreciation provisions. Thus, the capital figures are not presented on a correct cost basis. Also, the study does not try to present information in constant dollars; consequently, the figures are distorted over time.

Finally, as mentioned above, the nature and amounts of Federal Government assistance to the railways has substantially changed since the introduction of the National Transportation Act in 1967. Payments to the railways are no longer related to rates. They are now mainly to cover deficits on the operation of uneconomic branch lines and passenger-train services. The total paid to the railways has also decreased, to $158 million for 1971.

6.2   Canadian Transport Commission Studies

Three relevant studies have been recently produced by the CTC's research staff under the authorship of Dr. Z. Haritos. These studies are concerned with the publicly provided infrastructures for the road, air and marine modes of transport.

The purpose of the studies was to compare the costs incurred by various levels of government in providing the infrastructure with revenues collected from the users.

Three types of costs identified and calculated in these studies were:

1.   Current Costs – include administration, operation and maintenance costs.

2.   Depreciation – the capital cost of the various assets involved were determined and annual depreciation was then provided based on the estimated useful life of the asset.

3.   Cost of Capital - various costs of capital were calculated based on the net capital assets. For purposes of this Report, we have selected the results when a 6% cost of capital was used. The only revenues included were specific charges to the users of the facilities by the Government involved. General taxes and customs duties were excluded. Finally, all the costs and revenues were expressed in 1968 constant dollars.

6.2.1   Road Transport

The study looked at the costs and revenue connected with providing the road system in Canada. Included as costs were depreciation on capital costs incurred by the three levels of government, maintenance costs, administrative costs, and policing costs. Revenue figures include vehicle and driver's license fees, tolls, motor fuel charges, and fine revenue. The results showed that for the 14 year period 1955 to 1968, user revenues covered 70% of the total road costs. The various levels of Government provided the other 30%, which was an average of $384 million per year. For 1972, Governments provided 28% of the costs ($529 million).

Appendix I gives details of the results for the years 1955-68.

6.2.2   Civil Aviation Transport

The civil aviation infrastructure is comprised of the airports and related services, such as air traffic control, meteorological information, and research and rescue operations, provided by the Federal Government. The study included the costs for 113 airports in Canada. Estimates were made of non-civil aviation use of the facilities and these estimates were excluded from the infrastructure costs. The study showed that user revenues covered only 16% of the civil aviation infrastructure

costs for the years 1955 to 1968. Government contributions were an average of $134 million per year during this period, and were $163 million in 1968.

Detailed results of this study for the years 1955-68 are given in Appendix J.

6.2.3   Civil Marine Transport

The civil marine infrastructure in Canada includes harbors and structures, canals and channels, as well as supporting regulatory and administrative services. Specifically, it involves public harbors, government wharves, east coast ferry terminals, the St. Lawrence Seaway system, and other Great Lakes canal systems. Again, any costs and revenues associated with non-civil marine users have been excluded. User revenues covered only 21% of the total civil marine infrastructure costs from 1955 to 1968. The Federal Government provided the remaining 79%, which was an average of $263 million per year. In 1968 the Government provided $311 million, which was 79% of the total costs for that year.

Yearly results for the period 1955-68 are in Appendix K.

6.2.4   Rail Transport

Rail transport in Canada differs from the other modes of transport in that the infrastructure is owned by the railway companies, rather than by the Government.

In order to make comparisons with the other studies done by the CTC staff, an attempt has been made to determine the annual infrastructure costs for the railways. The infrastructure of the railways has been defined to include all capital assets with the exception of rolling stock, which was not included for the other modes. The infrastructure would thus include such things as the roadbed, infrastructures, rail, yards, buildings and stations.

Data obtained from Statistics Canada, CNR and CPR were used for these calculations. It is estimated that the original cost of the infrastructure is composed of $140 million for land and $4,816 million for the other assets, for a total of $4,956 million. The net book value of the infrastructure has been estim ated as $3,576 million. The calculations of the 1971 infrastructure costs yielded the following results (in millions of dollars):

Operating Expenses	$510
Depreciation	89
Cost of Capital	215
	$814

A 6% cost of capital has been included in order to make the results comparable to the CTC studies.

While the public does not provide any significant amount of the infrastructure facilities for the railways, the Federal Government does make payments which are designed to cover certain operating costs. By December 31, 1972, the Federal Government had paid $82 million (with respect to 1971) to the railways under the National Transportation Act. Thirteen Million was also paid under the Maritime Freight Rates Act, bringing the total Federal payments for 1971 to $95 million.

The payments under the National Transportation Act were made with regard to claims made by the railways under the following sections of the Act (in millions of dollars):

Section 256 (Unprotected Branch Lines)	$ -
Section 258 (Guaranteed Branch Lines)	22
Section 261 (Passenger-Train Services)	57
Section 272 (Eastern Rates)	2
	81
Section 413 (Equalization Payments)	1
	$ 82

Payments under the first four Sections mentioned above were made to either the CNR ($49 million) of the CPR ($32 million). It should be further noted that payments under Sections 256, 258, 261, and 272 were made after the CNR and CPR had submitted claims under these Sections for a total of $119 million.

The Federal Government also participates in the railway sector through the publicly-owned Canadian National Railways. In 1971, besides payments to the CNR under the National Transportation Act and the Maritime Freight Rates Act, the Federal Government purchased $39 million of 4% Preferred Stock and provided $24 million to cover that railway's operating deficit. During the same year, one-quarter billion dollars in Government guaranteed CNR bonds were replaced by direct Government of Canada Loans and Debentures.

Including preferred stock purchases and deficit-covering payments to the CNR, the total Federal Government contributions to the railways in 1971 were $158 million. These contributions represent 19% of the infrastructure costs of the railways. The remaining 81% is borne directly by users through the rates paid.

6.2.5   Conclusion

The CTC studies show that for the air, road, and marine modes of transport, the various levels of government provide most of the infrastructure facilities and bear a large part of the costs of these facilities. Using a 6% cost of capital, the CTC studies give the following results for 1968 (in millions of dollars):

	Total Costs	Total User Revenues	Deficit (Provided by Government)	Deficit as a Percentage of Total Costs
Air	208	45	163	78
Marine	394	83	311	79
Road	1,876	1,347	529	28

The three modes in total show an aggregate deficit of $1,003 million and total user revenues cover only 60% of the total costs for the combined modes.

Our calculations have shown the following results for the railway mode for 1971 (in millions of dollars):

Total Infrastructure Costs	Total Federal Government Assistance	Government Assistance as a Percentage of Infrastructure Costs
814	158	19

It should be further pointed out that Government assistance to railways is not the same as that given to the other modes of transport. The infrastructure costs provided by Governments for the air, marine, and road modes is largely of a capital nature. These modes thus receive the use of assets of a continuing nature as well as having lower fixed costs to cover with their rates. On the other hand, payments to the railways under the National Transportation Act are mainly to cover operating costs for maintaining uneconomical branch lines and passenger train operations. The payment to cover the CNR deficit can be viewed as covering the historical problem of the uneconomic foundation of the CNR.

The Government assistance to the railways thus has not been an active factor in setting the competitive level of railway rates, as it has been for the other modes of transport in Canada.

7.0 ROLE OF THE FEDERAL GOVERNMENT IN THE EQUITABLE PRICING POLICY

There are two basic premises to the Equitable Pricing Policy. The first was that all shippers in all parts of Canada should be treated equally. The second was that all transport modes in Canada should be treated equally by the Federal Government in its funding or provision of the capital infrastructure.

It has been established that the railways are not equally supported by the Federal Government. Several methods, which are complementary to the EPP, of correcting this situation are suggested below.

7.1 Acquisition of Railway Infrastructure by a Crown Corporation

A Crown Corporation could acquire railway infrastructure in Canada as a method of increasing the Federal Government's participation in the railway infrastructure and thereby putting that mode on a level closer to the Federal participation in other modes. As with the marine, air, and highway transport modes, the Federal Government would be responsible for the provision and maintenance of the basic fixed infrastructure. Costs relating to track and roadbed are a significant element in total railway fixed costs, and if the carriers were relieved of that responsibility, those costs would no longer remain a part of railway pricing decisions.

The Federal control of the infrastructure would put the railways into a truly competitive position. Shippers in places such as Medicine Hat, for example, would be able to negotiate with several railroad operating companies instead of just one, as they do now. The option would also be open to the shippers to run their own trains over the lines. As well, it would free the railroad companies, enabling each one to operate anywhere in Canada. In essence, the rail lines would

become as the highways are today - open to any operator demonstrating competence and capability.

There are other advantages to one authority regulating traffic over rail lines. Infrastructures could be consolidated, thereby eliminating thousands of miles of duplicate track which presently run side by side to facilitate the competitive efforts of railway companies. This consolidation, or rationalization of the rail network, could by itself save shippers large sums annually.

Provision by a Crown Corporation of railway roadbeds in remote areas could help accelerate development by spreading construction costs over a larger economic base and through time. A good example of this is the British Columbia Railway's push into the Northern interior of British Columbia. The cost of settling this area, and subsequently the Yukon and the Northwest Territories, should be an investment carried by all of Canada, and not just one Province. Furthermore, this action, combined with the Equitable Pricing Policy, would ensure a low, reasonable level of rates from the first day of operation. Often it is the case that initial low volume traffic must bear a higher burden of the cost until, with the passage of time, traffic develops and becomes more dense and the total cost is spread over a larger base, thereby enabling lower per unit rates.

Such an action would not be entirely without precedent. Just as a railway was used to bring British Columbia into Confederation, a railway could be used to bring (economically speaking) the Yukon and Northwest Territories into Confederation.

Branch line abandonment would no longer be left in the hands of the railways, but would be put into the hands of those who have a vested interest in keeping them open.

7.2   Leasing Railway Running Rights

Another method of implementing the proposed pricing system would be for the Federal Government to undertake to lease the main line running rights from the railways. The terms of the lease would be such as to lower the fixed costs of the railway to a point desired under the new pricing program. The lease could be modified readily as a tool to alter the total amount of recoverable costs and hence, the general level of freight rates.

7.3   Direct Railway Subsidies

The most conventional federal approach to the problem would be the direct payment of subsidies to the railways to cover the desired portion of their fixed expenses; ie. that portion not covered by user charges. Again, the total amount of subsidies would be set at a level such that government assistance and participation in the railway sector would be on a basis comparable to other transport modes in that users of each transport mode pay a fair and equitable share of the total costs.

7.4   Other Alternatives

A number of other options are available which could be used independently or in combination to realize the new pricing structure. A parliamentary enactment to make interest on railway bonds tax exempt, thus permitting lower cost borrowing, could provide a partial solution. Also, railway freight tariffs are based on costs which include a provision for a return on capital. Special tax provisions to lower or eliminate corporate income tax on railway

operating companies could also reflect itself in lower costs subject to recovery through freight tariffs. A similar provision was made for Calgary Power Limited to place that firm on a more competitive footing with publicly-owned utilities.

7.5   Conclusion

The Federal Government should support the railway infrastructure to the same extent that it does the infrastructure of the other transport modes. The recommended method of doing so is the leasing of railway running rights. This has two immediate, substantial benefits. First, it will help bring the National railway freight bill down to the level suggested by the Equitable Pricing Policy. Second, it will make the railway industry a competitive one by creating freedom of entry to any operator able to demonstrate competence and capability.

8.0 IMPLEMENTING THE EQUITABLE PRICING POLICY

National Transportation Policy seeks to put all modes of transport on a common competitive financial basis. Present policy has been directed towards the attainment of this objective by encouraging road, water, and air transport to bear a larger share of their total costs. These efforts should continue. At the same time, the balance between those modes and the railways is so far out of proportion that independent action with respect to railway costs is required. The steps required are direct and can be taken forthwith by the Federal Government.

The National Transportation Act of 1967 should be amended to clearly state that it is part of National Transportation Policy to have the user of rail services pay the same mile for mile rates for the same kind of equipment in all parts of Canada. The policy should also require that the rates paid by the user should cover long run variable costs (as presently defined by the Canadian Transport Commission) plus a contribution to overhead that is consistent with the contribution made by other modes of transport. Such an amendment should be a first priority item for the 1973 fall session of the 29th Parliament.

The Amendment should also instruct the appropriate administrative body to publish within 30 days of the passage into law of the amendment a series of Non-discriminatory Price Curves, not inconsistent with those contained herein, that establish the maximum

lawful rates for all rail traffic.

Within 60 days of the publication of the Non-discriminatory Price Curve, all Canadian railways should be required to publish tariffs which conform to the rate levels established by the Non-discriminatory Price Curves.

Subsequent to these events (or concurrently), the Federal Government should take the necessary steps to maintain the integrity of the railways by its choice of a financial program.

9.0 MONITORING AND CONTROLLING THE EQUITABLE PRICING POLICY

It is essential that this relatively simple and direct method of creating fair and reasonable freight rates across Canada be kept current.

The annual publication of a regional and commodity burden study (as is done by the Interstate Commerce Commission in the United States) would adequately monitor the effect of the rates on the carriers and the shippers. Any required changes could be made by appropriate legislative direction after consultation with the various interested Provincial Governments.

The Burden Study prepared by the Interstate Commerce Commission shows the relationship between revenue and variable cost for each significant class of commodity moving within or between major rate territories of the United States. An attempt is also made to measure a commodity's contribution to fixed overhead costs; that is, the amount of revenue exceeding variable cost. The allocation is arbitrarily proportioned between movements, but it still provides a general measure of the extent to which revenue cover or exceeds variable and fully allocated costs. A page taken from this study is given as an example in Appendix L.

Variable costs can be calculated to a reasonable degree of accuracy by using the costing formulae accepted today by the Canadian Transport Commission and the railways. It is, therefore, not necessary to undertake specific and overall costing (which would require an enormous expenditure of time and money), except in those cases where the statistical costing method revealed inordinate differences between costs and revenue.

In the case of the Equitable Pricing Policy, the long run variable cost formulae used by the CTC could be adjusted to coincide with the Non-discriminatory Price Curve. The Non-discriminatory Price Curve, as was pointed out earlier, can be moved up or down to attain that level of Federal participation in the railway cost infrastructure which is equal to that in other transport modes.

The Burden Studies now published in the United States break out variable costs according to type of car used to convey the commodities. This had not been done in the previous 20 years of the study, but acknowledgment was finally given to the fact that different car types have different cost factors. Inclusion of such a categorical cost breakdown in a Canadian Burden Study would be most relevant, inasmuch as the Non-discriminatory Price Curves are developed for specific equipment types.

The publication of a Burden Study in Canada is not a new idea. It was last proposed at the 1968 CTC Costing Hearings by the Provincial Governments, Wabush Mines and its associated railways, Algoma Steel Corporation, and the Canadian Trucking Association. Opposing the proposal were Canadian National, Canadian Pacific, and EBS Management Consultants, Inc. EBS was retained by the CTC to provide expert and independent advise to the Commission. The Provinces maintained that the Burden Study would isolate cases where there existed regional and commodity differences in contributions to overhead. Such cases would then be appropriately considered to ensure that an impediment to development did not persist. The other promulgators were interested in ensuring that rates did not exceed the ceilings set for certain traffic and did not go below compensatory levels for other

type of traffic. The Trucking Association was particularly interested in the latter as it has to face railway competition, which could become ruinous for the truckers if the railways were allowed to carry traffic at less than cost to attract the traffic.

The railways opposed the publication of a Burden Study for the following reasons:

1. The confidentiality between the railways and the CTC which presently existed would be ended;

2. The National Transportation Act envisioned free and unrestricted competition;

3. The Railway Act already provided the necessary controls for less than compensatory rates and exhorbitant rates (in areas of significant monopoly); and

4. It would be unjust to have only the railways disclose their costs, thereby impairing their negotiating capability.

A Canadian Burden Study could not do much to infringe upon CTC and railway confidentiality. A Burden Study could today be actually undertaken by a group other than these two. The generally accepted costing formulae are public knowlege and the traffic flows are reported in the Waybill Analysis. The Alberta and the British Columbia Governments could develop unit cost inputs through the Alberta Resources Railway and the British Columbia Railway respectively. The results, of course, would not adequately reflect accurate costs, but they would certainly isolate those extreme cases requiring remedial attention.

Free and unrestricted competition is in most cases a desirable objective. However, this cannot in most cases in Western Canada be attained. In this vast, predominantly, land-locked area (including interior British Columbia), the railways remain the only reasonable available transportation mode. Therefore, a proxy for competition must be found, and this is the Equitable Pricing Policy. It uses rates, which for the most part, are determined by competitive circumstances, and then applies them to areas where competition does not wholly exist.

The Railway Act and the National Transportation Act have proven to be ineffective in dealing with less than compensatory and with exhorbitant rates. An isolated exception to this, however, is the recent (June, 1973) CTC decision to lower the rate on milled rapeseed to the level of the rate on rapeseed from Western to Eastern Canada. This decision took 18 months to make. It is not difficult to imagine the time that would be required to judge the thousands of other individual cases requiring similar attention.

It is not exactly correct for the railways to maintain that their cost disclosure would impair its negotiating ability because other modes would know beforehand what competitive bids were likely to be. The railways themselves are also one of the largest trucking, steamship, and airline firms in Canada. Therefore, they already know their competitors cost range. The Burden Study would "even things up."

The EBS group opposed the Burden Study because only average costs would be involved and therefore of little use. It is true, average costs would be involved, but these could be refined by region-alizing. In any case, the Burden Study would still highlight those

commodities bearing an unexplainably high proportion of overhead costs as compared to other commodities, and more importantly, other regions.

Ultimately, the proposal that a Burden Study be undertaken was not accepted by the CTC. First, it was felt that "the task of producing and maintaining them is of major proportions, and the results would be of doubtful validity for the purposes for which they are sought." What the costs of production and maintenance would be and why they would have doubtful validity is not specified.

Second, the CTC maintained that "there is abundant data provided within the Waybill Analysis and in the published tariffs to afford the comparisons of rate characteristics needed for a prima facie case against an allegedly non-compensatory rate." This is not exactly correct. To be non-compensatory, a rate must be below "out-of-pocket" costs, or long run variable costs. Neither data source makes any reference to costs.

The final reason for deciding against the Burden Study was that "any captive shipper is free to apply for the range of a fixed rate without involving any attempt on his part to develop a cost study." This may give the satisfaction of knowing that a rate is not the highest in the country, but it does little to allow the unimpeded flow of goods and services between regions specializing in those economic activities they are best suited to pursue.

In conclusion, it is recommended that a Burden Study be conducted in Canada. It is inexpensive relative to full railway cost disclosure and may be completed in a very short time period,

thereby making it practicable to up-date annually. The costs
disclosed by the Burden Study could be used to determine the actual
shapes of the Non-discriminatory Price Curve, if not the actual
levels.

10.0 ECONOMIC IMPLICATION OF THE EQUITABLE PRICING POLICY

The EPP will be an impetus to development in Canada,
particularly in those areas which have been prevented from doing so
as a result of present freight rates. The cost of transportation
is a very important element in plant location decisions; consequently,
the implementation of the EPP will affect the future location and
expansion of a number of industries. The transport cost differential
between high-value finished goods and lower-value raw materials will
narrow. This will have implications vis-a-vis the location of plant
facilities at the raw material source or at the market. For Western
Canada, this would provide an incentive for the development and ex-
pansion of agricultural, petrochemical, forestry and other industries
with inherent production advantage in the West. It has been the case
under the present pricing system, despite substantial production
economies in the West, that producers have found it advantageous to
ship commodities in a raw or semi-finished form to market areas for
final processing. Consequently, the proposed transport pricing
system would provide new industrial and employment opportunities to
Western Canadians.

Implementation of the EPP will also have an impact on some
established Western Canadian industries. These are those industries
that have been developed under an umbrella of high prices created by
the existing transport pricing system. For example, some firms have
not had to face the threat of imports into their surrounding market

because freight rates were too high to permit profitable entry. In
these cases, firms might be faced with a tighter competitive position.
On the other hand, high freight rates that kept importers out may
have also worked the other way and kept the Western manufacturer
from exporting. The Manitoba furniture industry might be a good
example. Furniture from there has reached the Toronto market, but
has not been able to get as far as the large Montreal market.

It is worthwhile to take special note of British Columbia
as this Province has distinctly different characteristics than the
three Prairie Provinces. Indeed, B.C. is often put at the other
end of the freight rate argument because it is a beneficial recipient
of long and short haul dsicrimination. It has enjoyed relatively
low transcontinental rates because of threatened water transportation
from the East via the Panama Canal and because of market competition
from such offshore countries as Japan, and in some instances, Europe.
It is therefore understandable that this Province might be concerned
that it would lose these low freight rates by the implementation of
the EPP. This would not be the case.

Considering the traffic in which B.C. is involved, it is
found that the big volume is forest products and agriculture. In the
case of both these commodities, the change that will be provoked by
the EPP will be very beneficial for the simple reason that B.C. is
essentially a long-haul province. The EPP is going to reduce those
long haul rates, so that absolutely and relatively, B.C. forest and

and agricultural industry products are going to benefit.

An examination of the lumber rates in B.C. would reveal that interior rates are higher than coastal rates. The EPP will eliminate this differential, which is important because more lumber is shipped from the interior than the coast. Furthermore, the lowering of these rates will enable better competition with Washington and Oregon producers who are B.C.'s main competitors in this industry, and not the Prairie Provinces.

The same thing may be said for the mining industry. The EPP will make it desirable to process more minerals in B.C., and this will be a move in the direction desired by everyone in the West. Fish and fish products could be included in this category as well.

The low coastal rates are only for shipments to Vancouver, but there is much of B.C. that is important that does not involve that City. For example, there are the interior points and the northern points. These places are going to gain from lower freight rates. Again, lower rates between Vancouver and themselves, the Prairies and themselves, and Eastern Canada and themselves. The conclusion is that British Columbia will have just as much to gain, and as little to lose, as its three neighboring Provinces.

It may be found that a few industries in the West which had their home markets protected by freight rates would be adversely affected by the implementation of the EPP. These industries could be assisted in making the transition from a small local operation to one

competing in an open market environment. This assistance could be drawn from an equalization pool set up by the Western Provinces for such cases, just as there is an equalization pool for all the Provinces of Canada. The objective of this assistance (which could also be justifiably obtained from DREE) would be to create industrial development and diversification in Western Canada.

A last area which must be considered in regard to the economic implications of the EPP is the transportation industry. The impact here will be very slight, and then probably only in the trucking industry. A preliminary review of the traffic carried by trucks indicates that the only place where there would appear to be a revenue impact would be in the middle distances from 300 to 800 miles. Certain products moving by highway in that mileage range could be affected. The magnitude of the impact will depend largely on the specialization of the equipment and the degree of service involved. Long haul truck traffic which, to a large extent moves by rail as would most of the straight commodity freight.

11.0   CONCLUSION

The economic disadvantages created in Western Canada by the present railway rate structure are no longer tolerable. It is proposed that the Equitable Pricing Policy take its place.

The Policy will ensure that railways services will be related to costs. It will eliminate transportation barriers which were deliberately set many years ago to serve the economic development objectives of Eastern Canada. It will enable the economically justifiable establishment of secondary industry in Western Canada. It will ensure the strong growth of this region, making it better able to contribute to the overall goals of Canada.

The Equitable Pricing Policy has an immediate implementation capability. The premises behind it are not new. They are embodied in other transport operations. The EPP puts them all on an equal footing. In this sense, it has a universality, for it is relevant to all modes of transportation, in all parts of Canada, and for all Canadians. It is therefore recommended that the Equitable Pricing Policy become Canada's new method of railway rate making.

APPENDIX A

EXCERPTS FROM CTC COST ORDER NO. R-6313

Costs in
relation to
branch line

(c) "costs" in relation to a branch line means
those costs, for purposes of calculating
actual loss, which, allowing a reasonable
period of time for adjustment to the new
condition, would have been avoided or
would be avoided by a company if, in any
financial year, it did not maintain and
operate the branch line, and did not incur
the variable cost of carrying the traffic
originating or terminating on the line
irrespective of when or in what manner, or
by whom such costs were incurred.

Passenger -
train service

(d) "passenger-train service" means such train
or trains of a company as are capable of
carrying passengers and are declared by an
order of the Committee, for the purposes
of Section 314I and Section 314J, to
comprise a passenger-train service.

Costs in
relation to
passenger-
train service

(e) "costs" in relation to a passenger-train
service means those costs, for purposes of
calculating actual loss, which, allowing a
reasonable period of time for adjustment

APPENDIX A CONTINUED

to the new condition, would have been

avoided or would be avoided in the carriage

of passengers by the service if, in any

financial year a company did not operate

the service irrespective of when, or in what

manner, or by whom such costs were

incurred.

Factors to
be given
effect under
section 336

2. For the purposes of these Regulations,

(a) Cost of carriage of goods under Section 336
of the Act shall

(i) be calculated on the basis of carloads of

thirty thousand pounds in the standard

railway equipment for such goods and

such other weights as are required for

purposes of determining a rate.

(ii)be computed, on the basis of the costs of

the lowest cost rail route, if the goods

concerned may move between points in

Canada by alternative route of two or

more railway companies.

5. For the purposes of Sections 317, 329, 334 and

336, or for other purposes pertaining to rates

for the carriage of goods,

APPENDIX A CONTINUED

Basis of cost for purposes of sections 317, 329, 334, 336	(1)	Costs shall be variable costs based either on the expense accounts maintained under the Uniform Classification of Accounts for Common Carriers by Railway and accounts reconcilable therewith, or on such special studies of items and factors of costs as the Committee considers appropriate, and shall include the increases or decreases in rail operations expenses resulting from changes in the volume of traffic, allowing a reasonable period of time for adjustment in view of the traffic to be handled.
Cost of capital	(2)	There shall be included in the variable costs an allowance for cost of capital based on a rate of return, including allowance for income tax, which in the opinion of the Committee is appropriate for Canadian Pacific Railway Company, applied to the variable portion of the net book value of the assets related to the movement of the traffic.
Categories of costs to appear in cost submissions	(3)	Variable cost shall be shown in the cost submissions separated between "labour" and "material and other" cost, in the categories identified in the Costing Manuals filed pursuant to any order of the Committee.

APPENDIX A CONTINUED

Specific
costs to
be used
whenever known

6. Whenever specific costs are known or can be readily determined from company records, such costs shall be used in lieu of averaged or allocated costs.

Costing
Manuals to
be filed

7. Cost submissions made pursuant to this Order shall be prepared in accordance with such Costing Manuals as the Committee shall require.

Information
to be made

8. Railway companies shall make available to the Committee all unit costs, output units and other statistical and supporting information as required from time to time by the Committee in determining whether cost submissions are acceptable for purposes of the Act.

Cost sub-

9. Cost submissions by railways other than Class I railways

   (1)   Shall be based on direct costing to the extent feasible.

   (2)   Where feasible, an empirical adaptation of factors employed by Class I railways will be made for other than direct assignment of costs.

   (3)   Cost submissions shall be in the same form as those presecribed for Class I railways and shall be supported by a complete description of the methods and procedures used in

determining output units and in assigning
and allocating costs.

(4)   For the purposes of Sections 314A to 314J,
317, 329, 334, 336. 387A and 387B of the
Railway Act, the rate of return on capital
proper for Canadian Pacific Railway Company
in similar circumstances will be applied.
When there is evidence that such application
to Sections 314A to 314J of the Railway Act
is not appropriate, a specific cost of
capital shall be determined to reflect the
individual characteristics of the railway to
which it is to be applied.

APPENDIX B

CTC GUIDELINES FOR DETERMINING RATE OF RETURN ON CAPITAL

As explained above, it would, in these reasons, be unwise for the Committee to presecribe a specific rate. Individual cases could no longer be considered in the light of current capital markets, of what "to the Commission seems reasonable in the circumstances" and of "later developments in railway costing methods and techniques and current conditions of railway operations".

However, several general principles are hereby established by way of guide lines to the computation of an appropriate rate of return:

(a) The rate of return to Canadian Pacific should be no lower than the composite embedded rate of interest for outstanding debt of Canadian Pacific.

(b) The calculation of the rate of return should allow for a certain portion of equity capital in the capital structure of the railway. Because of the higher risk of equity capital and the need to retain earnings for capital additions, the return to the equity portion of the capital structure should normally be higher than current average interest cost.

(c) For purposes of compensatory and maximum rate calculations (sections 317, 329, 334, and 336 of the Railway Act), the computation of the rate of return should acknowledge the liability for income tax on all earnings by equity capital regardless of whether the railway, as a system, paid income tax in that year.

APPENDIX B CONTINUED

(d)   Since no branch line or passenger-train service could incur an actual loss and still be liable for income tax, no allowance for income tax should be made in the computation of the rate of return to capital for purposes of branch line abandonment (sections 314A through 314G) or passenger train discontinuance (sections 314I and 314J of the Railway Act).

(e)   The rate of return should be lower than a rate calculated by means of the conventional rate base - rate of return method. The effect of inert assets in the Canadian Pacific net investment base is to inflate the equity portion of the railway's capital structure. Since equity normally requires a higher rate of return than debt - particularly if income tax is included - a return calculation using net book investment results in a rate which is higher than reasonable when applied to specific items of investment.

The foregoing principles have been expressed in terms of Canadian Pacific which, according to the Railway Act, provides the cost of capital yardstick for all railways for purposes of the rate regulatory sections 317, 329, 334, and 336. After reviewing the present capital structure of Canadian National, we have concluded it should not be used as a basis for developing a cost of capital rate for sections 314A through 314J of the Railway Act. EBS was of the same opinion. The Committee will, therefore, direct that the Canadian Pacific rate of return be applied to Canadian Pacific rate of return be applied to Canadian National for all costing purposes under the Railway Act.

APPENDIX C

GENERAL NON-DISCRIMINATORY PRICE CURVE CLASSIFICATION

BY TYPE OF EQUIPMENT

1. **GONDOLA CARS**

    iron & steel scrap
    limestone, crushed or broken
    stone, NES
    gypsum
    wood waste, NES
    ingots, blooms, billets &
        slabs, iron & steel

    bars & rods, steel
    steel plates, fabricated
    sheet & strip steel
    structural shapes & sheet
        piling
    iron & steel
    pipes & tubes, iron & steel
    copper & alloys in primary
        forms
    leads & alloys
    zinc & alloys
    metal fabricated basic
        products, NES

2. **TANK CARS**

    crude mineral oils (petroleum)
    liquid sulphur
    chemical elements
    sulphuric acid
    sodium hydroxide
    inorganic bases & metallix
        oxides
    hydroxides & peroxides, NES
    phinols, ethers, aldehydes,
        keytones, & their derivatives
    chemical specialties,
        industrial NES
    gasoline
    diesel fuel
    fuel oil, NES
    refined & manufactured gases,
        fuel types

3. **FLAT CARS**

    logs & bolts of wood
    round timber, NES
    plywood
    lumber
    construction & maintenance
        machinery & equipment
    TOFC - Trailers loaded
    TOFC - Trailers empty
    COFC - Containers loaded
    shipping containers, returned
    empty pipe
    COFC - empty

4. **HOPPER CARS**

    portland cement, standard
    lime, hydrated & quick
    fertilizer & fertilizer
        materials, NES
    phosphate rocks
    common salt, rock or bulk
    muriate of potassium (potash)
    copper ores & concentrates
        (some are being bagged now
        & laid on flat cars)
    lead ore & concentrates
    nickel-copper ore & concentrat
    nickel ores & concentrates
    matte, nickel, copper-nickel,
        or nickel iron chromium all
    zinc ore & concentrates
    bituminous coals
    lignite coal
    gravel
    sand, NES
    sodium sulphate
    sodium carbonate
    metallic salts & peroxy salts
        or inorganic acids, NES
    ammonium phosphates
    bulk sulphur, NES
    coke, NES

GENERAL NON-DISCRIMINATORY PRICE CURVE CLASSIFICATION BY

TYPE OF EQUIPMENT (CONTINUED)

5.   BOX CARS

vegetables & preparations
  NES (insulated or refrigerator)
sugar
food preparations & material
  for food preparations, NES
  (insulated or refrigerator)
secondary or complete animal
  feeds, NES
ale, beer (insulated boxes)
freight forwarder & shipper
  association traffic
metal containers (drums, etc.)
  woodpulp
asbestos, (unmanufactured
  crude & fibre)
plywood (usually require
  larger than 6' door)
wood building boards, NES
newsprint (special car; has
  to be a good box)
paperboard, NES
synthetic rubber
plastic materials, not shaped
  and basic shapes & forms
paint & related products
lubricating oils & greases
motor vehicle engines, accessories,
  parts & assemblies (boxes with
  special bracing)
rubber tires & tubes
electric appliances & accessories
toiletries, cleaning preparations
  & household chemical specialties
mixed carload freight NES
bakery products
potatoes

6.   TRI & BI LEVELS

new automobiles

7.   REFRIGERATOR CARS

meat, fresh or chilled
fish & marine animals
dairy produce, NES eggs &
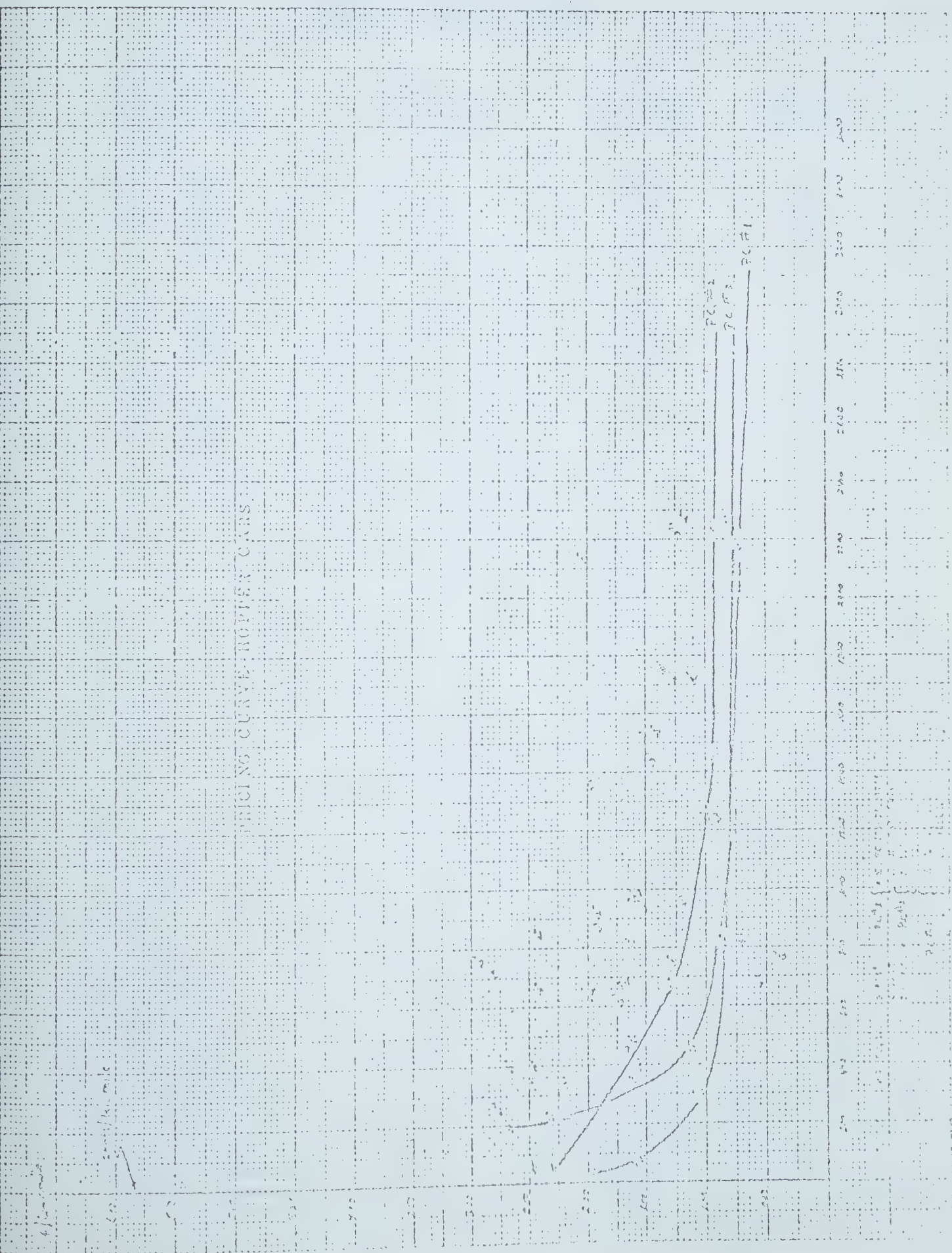 honey (usually LCL
  shipments)

This list does not purport to exhaust all equipment variations or all commodities. In regard to commodities, those listed are intended to give only a general indication of the type of equipment used. Indeed, the same commodity can and most often does move in several different types of cars.

The equipment variations are not exhausted, but those seven classified are believed to be the basic generic types. In any case, the effect on the Non-discriminatory Price Curve of different equipment variations may not be that significant if the average cost of railway equipment is considered. The average costs are within a narrow range, and when the long service life of a car is considered, the annual difference is slight. The average cost of railway equipment is given below.

Average Cost of Railway Equipment - 1971

Box Car - insulated	$20,000
- standard	18,000
Flat Car	17,000
Gondola Car	21,000
Refrigerator Car (mechanical)	40,000
Automobile Carriers - bi-level	28,000
- tri-level	31,000
Hopper Cars - covered	20,000
- cross	18,000
Tank Cars - not supplied by the railways	

Source: CNR

The image is a full-page graph on graph paper. It contains a pricing curve for hopper cars.

PRICING CURVE HOPPER CARS

HOPPER CAR MILEAGE SCHEDULE

Mileage	Rate/cwt	Mileage	Rate/cwt
	¢		¢
100	7	400	19
125	9	425	20
150	10	450	21
175	11	475	22
200	12	500	23
225	13	600	26
250	14	700	30
275	14	800	34
300	15	2,900	94
325			
350			
375			

PRICING CURVE BOX CARS
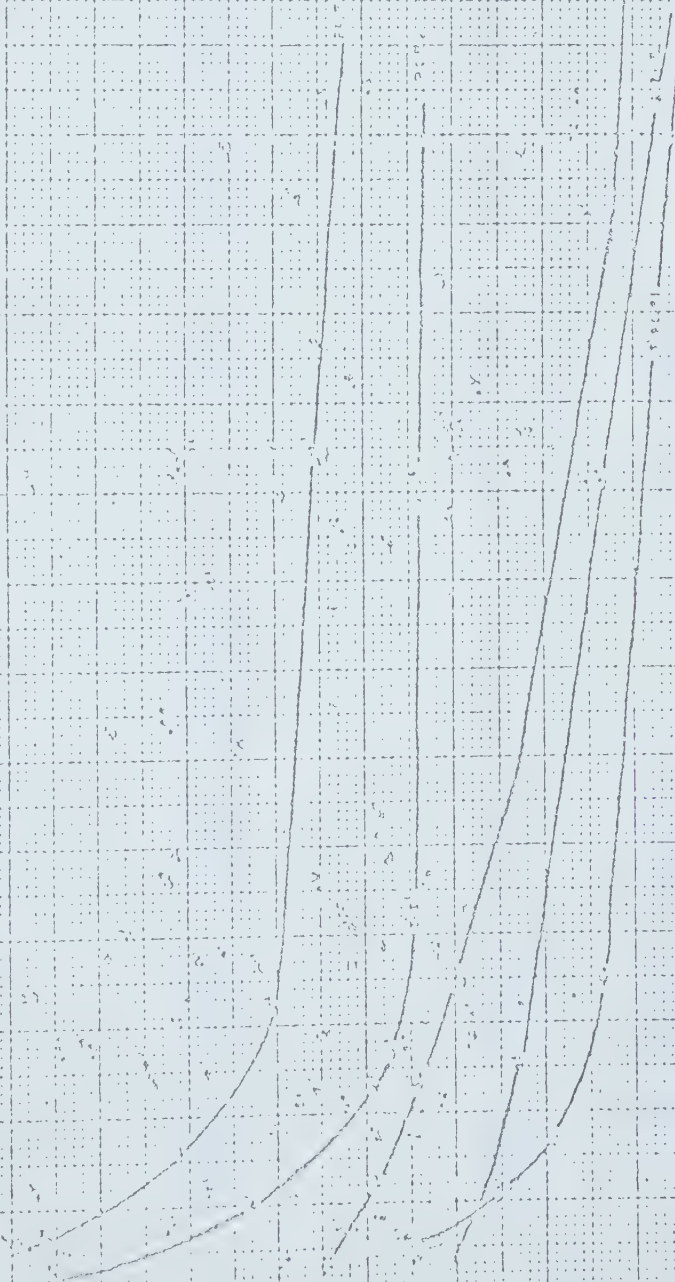
BOX CAR MILEAGE SCHEDULE

		Mileage	Rate/cwt	Mileage	Rate/cwt
			¢		¢
a)	40,000 pounds or less	300	68	600	100
		325	71	700	111
		350	74	800	123
		375	76	900	134
		400	79	2,900	381
		425	82		
		450	84		
		475	87		
		500	90		
		525	93		
		550	95		
		575	98		
b)	40,000 to 60,000 pounds	300	55	600	77
		325	57	700	85
		350	59	800	93
		375	60	900	102
		400	62	1,000	112
		425	64	2,900	312
		450	66		
		475	68		
		500	70		
		525	72		
		550	73		
		575	75		
c)	60,000 to 80,000 pounds	300	40	575	66
		325	43	600	68
		350	45	700	76
		375	47	800	83
		400	50	900	90
		425	52	1,000	96
		450	55	1,400	115
		475	56	2,600	146
		500	59	2,900	155
		525	61		
		550	64		

BOX CAR MILEAGE SCHEDULE CONTINUED

		Mileage	Rate/cwt	Mileage	Rate/cwt
			¢		¢
d)	80,000 to 100,000 pounds	300	30	600	52
		325	32	700	58
		350	34	800	64
		375	36	900	71
		400	37	1,000	76
		425	39	2,000	117
		450	41	2,900	123
		475	43		
		500	45		
		525	46		
		550	48		
		575	50		
e)	100,000 pounds or more	300	32	600	41
		325	33	700	45
		350	33	800	49
		375	34	900	53
		400	35	1,000	57
		425	36	2,200	99
		450	37	2,900	112
		475	37		
		500	38		
		525	39		
		550	40		
		575	41		

PRICING CURVE REFRIGERATOR CARS

REFRIGERATOR CAR MILEAGE SCHEDULE
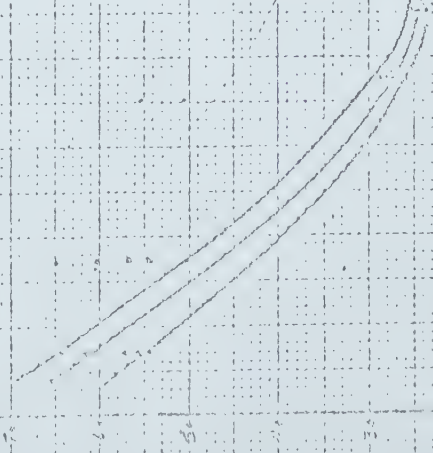
		Mileage	Rate/cwt ¢	Mileage	Rate/cwt ¢
a)	40,000 pounds or less	100	34	400	94
		125	41	425	97
		150	48	450	99
		175	54	475	100
		200	61	500	102
		225	66	525	104
		250	72	550	106
		275	76	575	106
		300	81	600	107
		325	85	700	110
		350	88	800	111
		375	91	900	115
				1,000	127
				2,900	362
b)	40,000 to 55,000 pounds	100	32	400	86
		125	39	425	88
		150	45	450	89
		175	51	475	91
		200	57	500	93
		225	62	525	95
		250	66	550	95
		275	70	575	96
		300	74	600	98
		325	78	700	102
		350	81	800	104
		375	83	900	110
				1,000	122
				2,900	349

REFRIGERATOR CAR MILEAGE SCHEDULE CONTINUED

	Mileage	Rate/cwt	Mileage	Rate/cwt
		¢		¢
c) 55,000 pounds or more	100	29	400	79
	125	35	425	82
	150	41	450	83
	175	46	475	84
	200	51	500	86
	225	56	525	88
	250	60	550	89
	275	64	575	89
	300	66	600	91
	325	71	700	95
	350	74	800	98
	375	76	900	104
			1,000	115
			2,900	290

PRICING CURVE FLAT CARS AND GONDOLAS
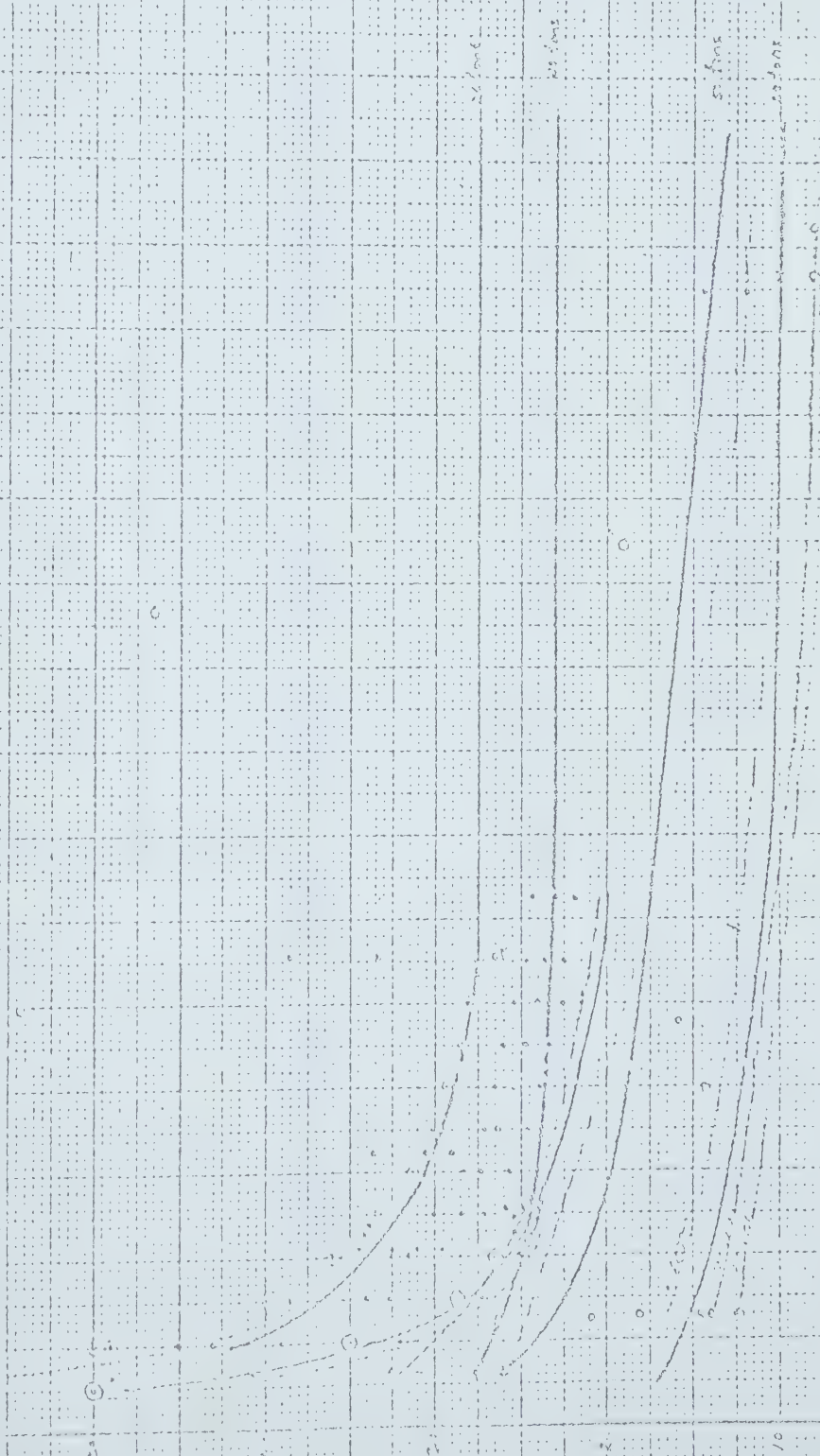
FLAT CAR AND GONDOLA MILEAGE SCHEDULE

		Mileage	Rate/cwt	Mileage	Rate/cwt
			¢		¢
a)	40,000 pounds or less	200	42	500	80
		225	45	525	83
		250	48	550	86
		275	52	575	89
		300	55	600	92
		325	59	700	103
		350	62	800	115
		375	65	900	127
		400	68	1,000	139
		425	71	2,900	397
		450	74		
		475	77		
b)	40,000 to 80,000 pounds	200	27	500	61
		225	30	525	64
		250	33	550	66
		275	35	575	69
		300	35	600	72
		325	41	700	83
		350	44	800	94
		375	47	900	106
		400	50	1,200	139
		425	52	2,900	333
		450	55		
		475	58		
c)	80,000 to 100,000 pounds	200	24	500	51
		225	27	525	53
		250	29	550	55
		275	31	575	57
		300	34	600	59
		325	36	700	67
		350	38	800	75
		375	40	900	83
		400	42	1,000	91
		425	45	2,900	196
		450	47		
		475	49		

FLAT CAR AND GONDOLA MILEAGE SCHEDULE CONTINUED

	Mileage	Rate/cwt	Mileage	Rate/cwt
		¢		¢
d) over 100,000 pounds	200	16	500	34
	225	17	525	35
	250	19	550	36
	275	21	575	37
	300	22	600	39
	325	24	700	44
	350	25	800	49
	375	27	900	53
	400	28	1,000	58
	425	29	1,200	66
	450	31	1,500	78
	475	32	2,900	142

APPENDIX D

ILLUSTRATIONS OR NON-DISCRIMINATORY PRICE CURVES AND

MILEAGE SCHEDULES

It has been shown in the case of Hopper Cars how the Non-Discriminatory Price Curve would be derived from existing rate and cost data. In this Appendix, the Non-Discriminatory Price Curves for each of the remaining six Equipment Classifications are drawn. From these Curves, mileage schedules were developed and these are also included.
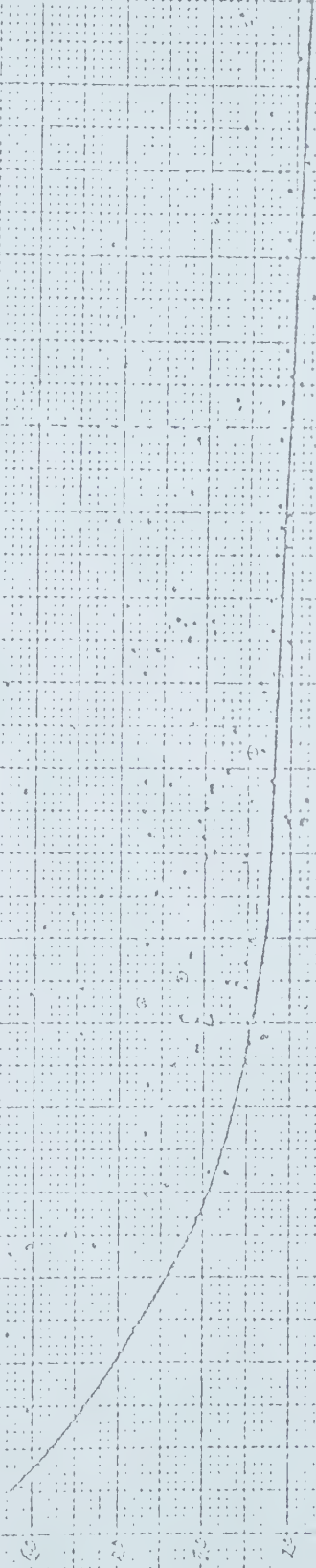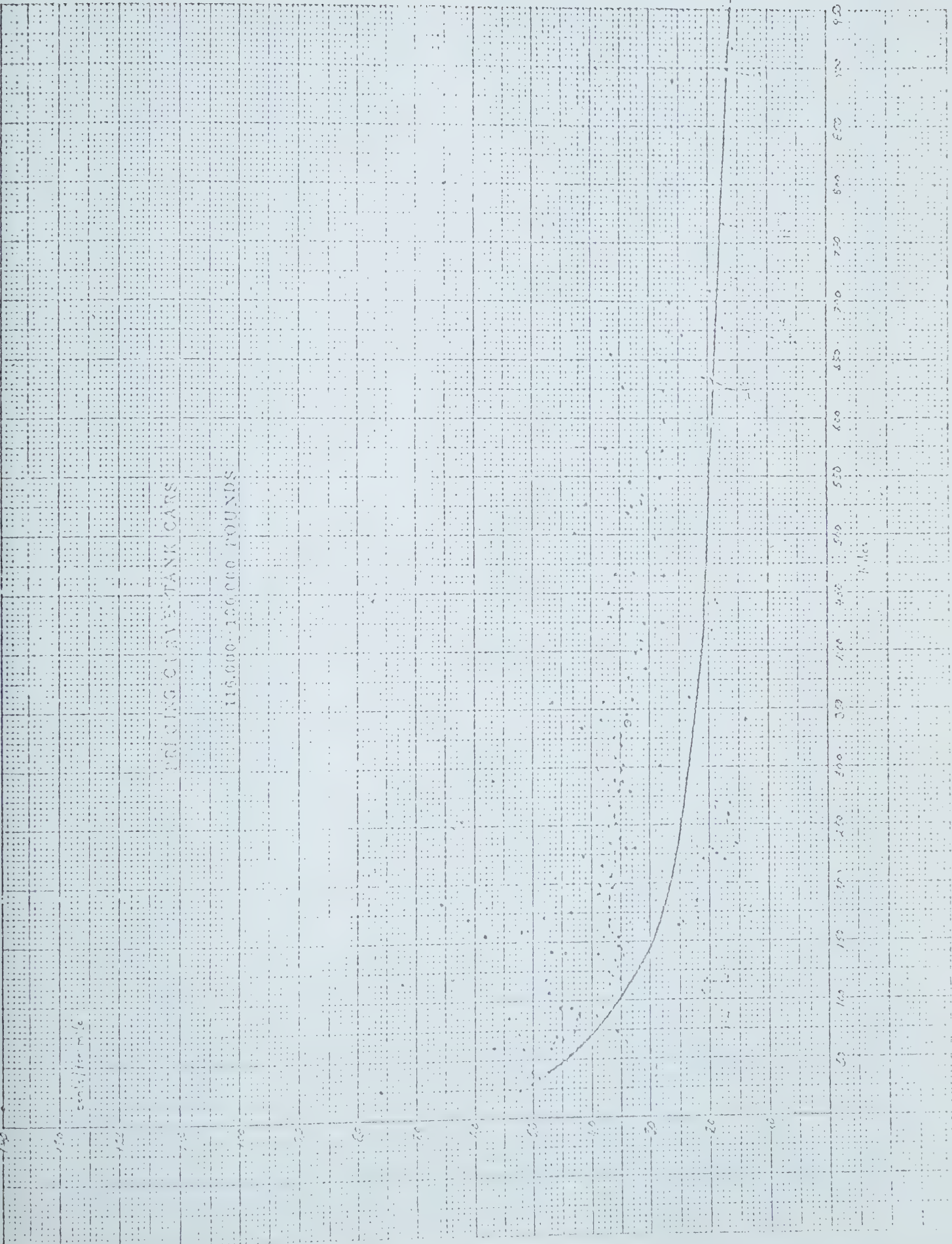
PRICING CURVE TANK CARS
80000 - 115,000 POUNDS
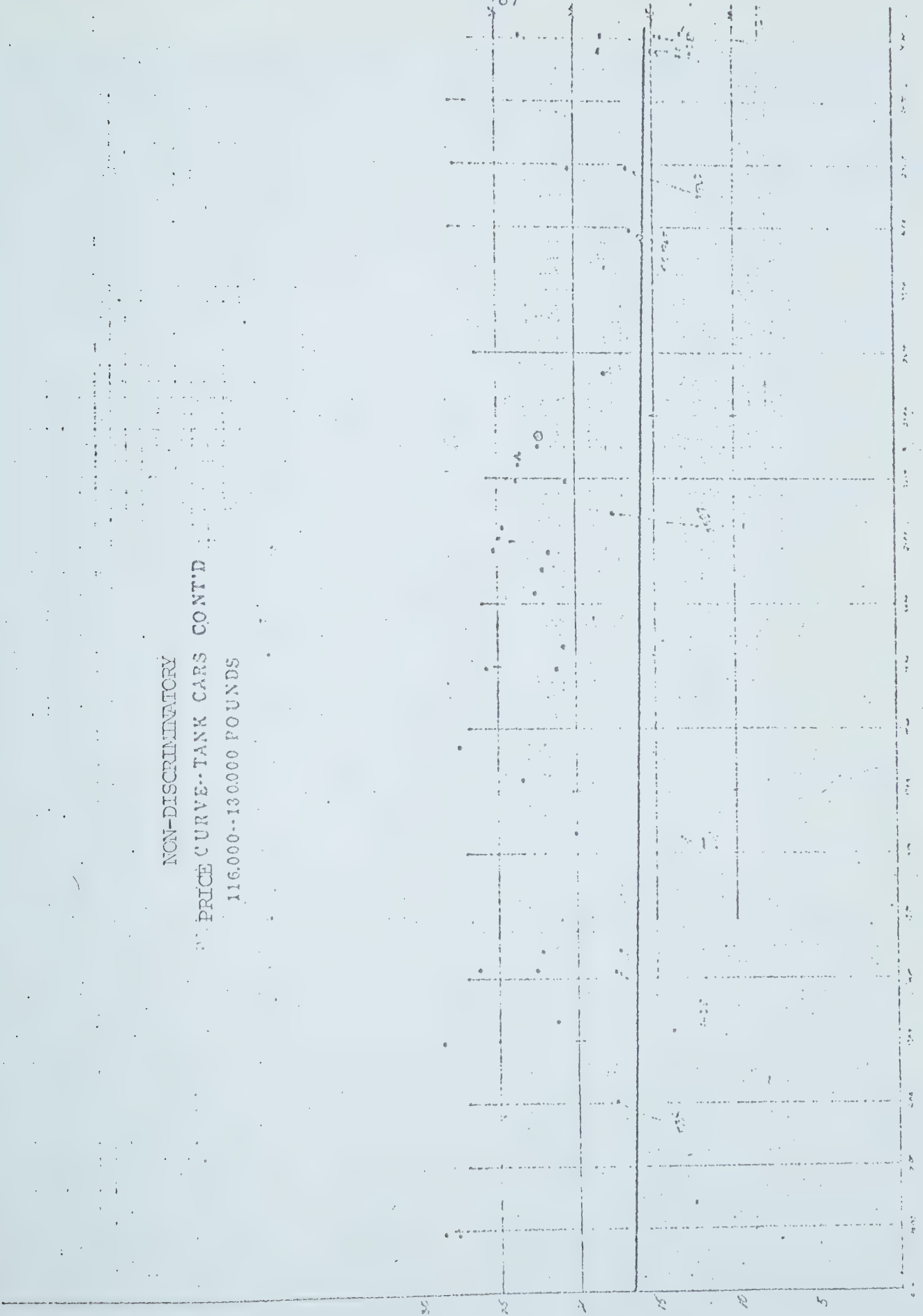
PRICING CURVE TANK CARS CONT'D

80000-115000 POUNDS

PRICING CURVE TANK CARS

115,000-150,000 POUNDS

NON-DISCRIMINATORY

PRICE CURVE--TANK CARS CONT'D

116,000--130,000 POUNDS
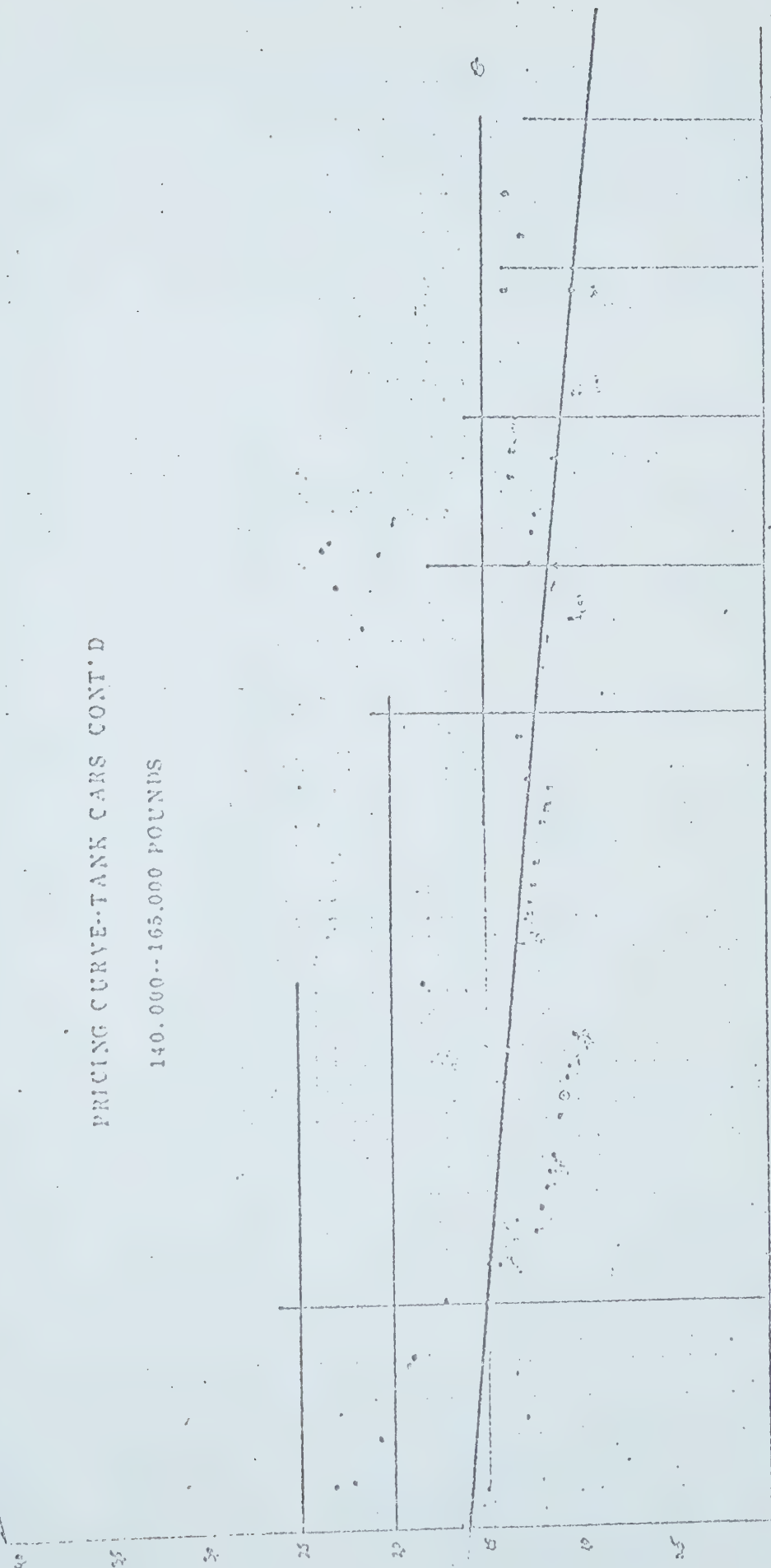
PRICING OF TANK CARS
140,000-165,000 POUNDS

PRICING CURVE--TANK CARS CONT'D

140,000--165,000 POUNDS

PRICING CURVE TANK CARS

170,000 & 190,000 POUNDS

PRICING CURVE--TANK CARS CONT'D

170,000--190,000 POUNDS

TANK CAR MILEAGE SCHEDULE

	Mileage	Rate/cwt ¢	Mileage	Rate/cwt ¢
a) 115,000 pounds or less	25	7	425	47
	50	12	450	50
	75	17	475	52
	100	20	500	55
	125	23	600	63
	150	26	700	70
	175	28	800	76
	200	30	900	83
	225	32	2,900	239
	250	33		
	275	35		
	300	37		
	325	38		
	350	40		
	375	42		
	400	45		
b) 116,000 to 135,000 pounds	100	18	500	50
	125	20	600	59
	150	22	700	65
	175	25	800	70
	200	27	900	74
	225	29	2,900	223
	250	31		
	275	33		
	300	35		
	325	37		
	350	39		
	375	41		
	400	43		
	425	45		
	450	46		
	475	48		

TANK CAR MILEAGE SCHEDULE CONTINUED

		Mileage	Rate/cwt ¢	Mileage	Rate/cwt ¢
c)	135,000 to 165,000 pounds	100	16	400	37
		125	18	425	38
		150	20	450	40
		175	22	500	44
		200	24	600	51
		225	26	700	59
		250	28	800	66
		275	29	900	73
		300	31	2,900	129
		325	33		
		350	34		
		375	36		
d)	165,000 t0 190,000 pounds	100	16	500	40
		125	17	600	48
		150	19	700	55
		175	20	800	62
		200	21	900	69
		225	23	2,900	181
		250	24		
		275	26		
		300	28		
		325	29		
		350	31		
		375	32		
		400	33		
		425	35		
		450	36		
		475	38		

PRICING CURVE AUTOMOBILE TRILEVEL
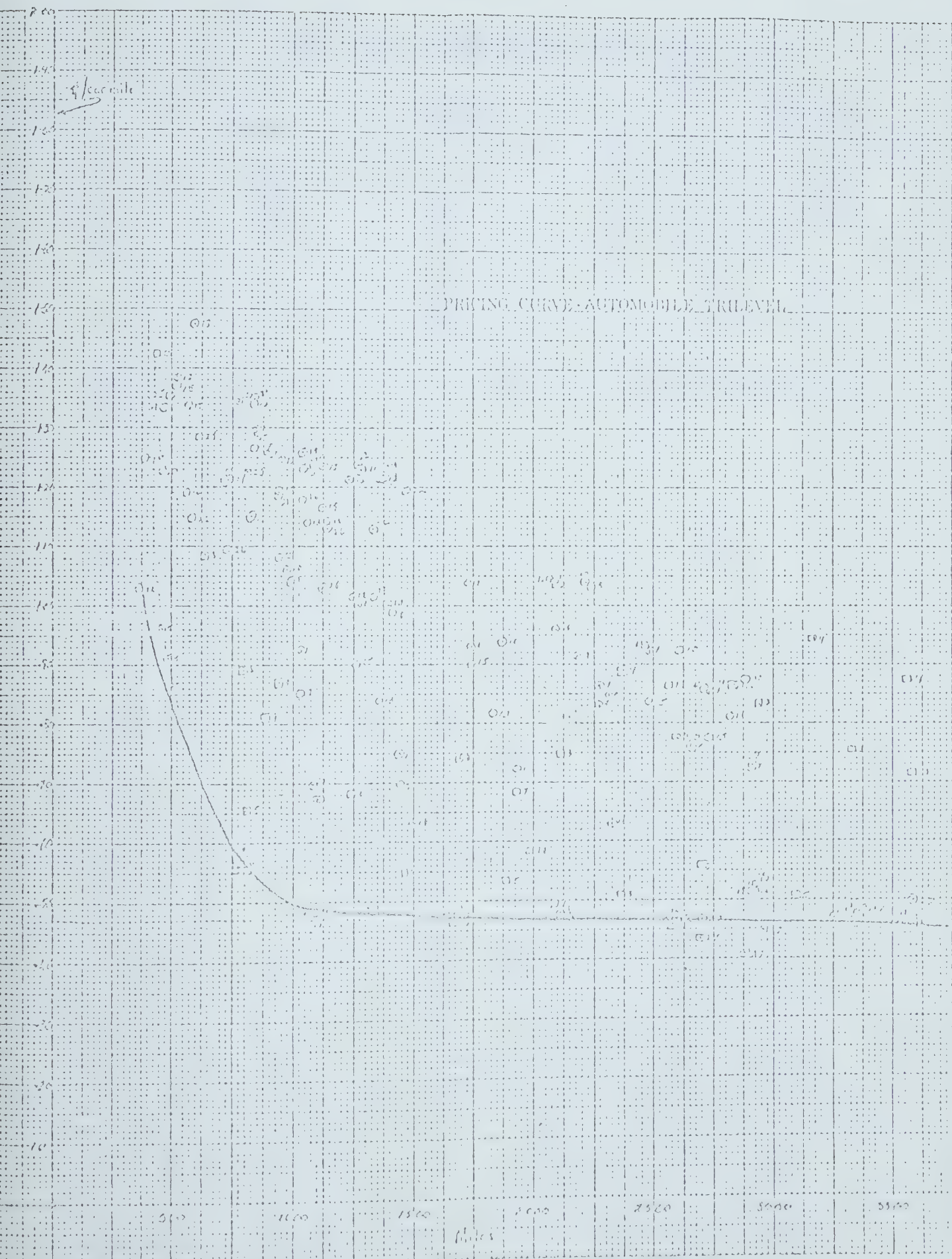
AUTOMOBILE TRILEVEL MILEAGE SCHEDULE*

Mileage	Rate/Car mile $	Mileage	Rate/Car mile $
350	1.03	1,100	0.49
400	0.98	1,200	0.48
500	0.83	2,900	0.46
600	0.73		
700	0.63		
800	0.57		
900	0.52		
1,000	0.50		

*these rates, for the most part, are presently published in $/car mile and not ¢/cwt.

APPENDIX E

DIRECT AND INDIRECT COSTS - HIGHWAY TRANSPORTATION
(in millions of dollars)

	1945	1949	1953	1957	1961	1965
Direct Costs - to users of transportation facilities						
Passenger Cars	492	928	1,965	4,432	5,667	6,916
Taxis	94	142	277	482	616	752
Buses	130	157	187	172	181	210
Trucks	745	1,584	2,986	2,546	3,286	3,208
Total Direct Costs	1,461	2,811	5,415	7,632	9,750	11,086
Indirect Costs - to general public Highway Construction Maintenance, Administration						
Federal	4	13	27	72	97	155
Provincial	106	250	350	564	645	1,100
Municipal	30	62	110	213	247	330
Gross Indirect Cost	140	325	487	849	989	1,585
Motor Vehicle Revenue received by governments	108	201	308	482	628	925
Net Indirect Cost	32	124	179	367	361	660
Total Costs	1,493	2,935	5,594	7,999	10,111	11,746
Net Indirect Cost as a Percentage of Total Costs	2%	4%	3%	5%	4%	6%

Source: Purdey, H.L., Transport Competition and Public Policy in Canada,
University of British Columbia Press, 1972.

APPENDIX F

DIRECT AND INDIRECT COSTS – AIR TRANSPORTATION
(in millions of dollars)

	1945	1949	1953	1957	1961	1965
Direct Cost – to users of transportation	16	53	109	206	289	446
Indirect Cost–to general public						
Operating Costs						
Airways and Airports	5	13	16	31	53	70
Meteorological	1	2	3	10	17	22
General Administration	1	2	3	3	7	9
Ownership Costs						
Capital Expenditures	31	42	15	45	74	43
Subsidy Payments to Carriers and Municipalities	2	4	–	–	7	1
Gross Indirect Cost	40	63	37	89	158	145
Revenues received – Federal, Provincial, Local	1	5	6	10	18	29
Net Indirect Cost	39	58	31	79	140	116
Total Costs	55	111	140	285	429	562
Net Indirect Cost as a Percentage of Total Costs	71%	52%	22%	28%	33%	21%

Source: Purdey, H.L., Transport Competition and Public Policy in Canada, University of British Columbia Press, 1972.

APPENDIX G

DIRECT AND INDIRECT COSTS – WATERWAY TRANSPORTATION
(in millions of dollars)

	1945	1949	1953	1957	1961	1965
Direct Cost – to users of transportation	228	216	253	345	316	368
Indirect Costs – Federal Government Expenditures Harbours and Canals (includes operating and Capital expenditures)	11	37	47	34	42	36
Marine Services	5	10	16	30	40	56
St. Lawrence Seaway	–	–	–	–	11	17
Other Expenditures	2	2	3	–	–	7
Direct Subsidies to Carriers and User	1	4	7	6	11	14
Gross Indirect Cost	19	53	73	70	104	130
Revenue Received	2	2	3	4	17	27
Net Indirect Cost	17	51	70	66	87	103
Total Costs	245	267	323	411	403	471
Net Indirect Cost as a Percentage of Total Costs	7%	19%	22%	16%	22%	22%

Source: Purdey, H.L., Transport Competition and Public Policy in Canada, University of British Columbia Press, 1972.

APPENDIX H

DIRECT AND INDIRECT COSTS - RAIL TRANSPORTATION
(in millions of dollars)

	1945	1949	1953	1957	1961	1965
Direct Cost - to users of transportation	731	843	1,122	1,263	1,087	1,304
Indirect Costs						
Subsidies paid to shippers	18	19	23	22	27	32
Government payments to rail carriers	4	7	19	20	88	109
Payments to carriers for cash deficits	-	43	4	31	78	50
Payments received by government from rail surplus	(23)	-	-	-	-	-
Capital expenditures	9	12	13	27	26	35
Miscellaneous	1	2	1	2	3	3
Total Indirect Cost	9	83	60	102	222	229
Total Costs	740	926	1,182	1,365	1,309	1,533
Indirect Cost as a Percentage of Total Costs	1%	9%	5%	7%	17%	15%

Source: Purdey, H.L., Transport Competition and Public Policy in Canada, University of British Columbia Press, 1972.

APPENDIX I

ROAD INFRASTRUCTURE

CANADA 1955-68

Year	Depre-ciation	Cost of Capital	Total Capital Costs	Total Current Costs	Total Costs	Total Revenues	Total Revenue as a Percentage of Total Costs
1955	220	187	407	435	842	580	69
1956	234	201	435	444	878	597	68
1957	250	219	469	430	899	664	74
1958	266	239	505	452	958	700	73
1959	286	268	555	479	1024	731	71
1960	313	301	614	460	1074	760	71
1961	344	335	680	470	1150	853	74
1962	378	366	744	494	1238	887	72
1963	415	394	809	531	1340	945	71
1964	459	426	885	556	1441	1031	72
1965	509	464	973	592	1565	1059	68
1966	558	500	1059	603	1662	1067	64
1967	606	538	1144	641	1785	1139	64
1968	649	568	1217	658	1876	1347	72

Source: Haritos, Z., Road Annual Costs and Revenues, 1955-1968, Information Canada, Ottawa, 1972.

APPENDIX J

CIVIL AVIATION INFRASTRUCTURE

CANADA 1955 - 68

Year	Depreciation	Cost of Capital	Total Capital Costs	Total Current Costs	Total Costs	Total Revenues	Total Revenue as a Percentage of Total Costs
1955	18	16	35	60	94	15	16
1956	18	17	35	67	102	16	15
1957	20	18	38	74	111	15	14
1958	22	20	42	87	129	19	15
1959	25	22	47	94	141	20	14
1960	28	25	52	100	152	21	14
1961	33	30	63	104	167	25	15
1962	35	32	67	104	171	26	15
1963	35	33	68	103	172	27	16
1964	39	38	77	115	192	31	16
1965	39	38	77	116	194	33	17
1966	39	38	77	120	196	33	17
1967	40	38	77	132	209	39	19
1968	40	39	79	129	208	45	22

Source: Haritos, Z., and J.D. Gibbord, Civil Aviation Infrastructure Annual Costs and Revenues, 1954-1968, Information Canada, Ottawa, 1972.

APPENDIX K

CIVIL MARINE INFRASTRUCTURE

CANADA 1955-68

Year	Depre-ciation	Cost of Capital	Total Capital Costs	Total Current Costs	Total Costs	Total Revenues	Total Revenues as a Percentage of Total Costs
1955	71	111	182	81	262	53	20
1956	70	111	181	85	266	58	22
1957	69	112	181	86	266	55	21
1958	71	113	184	90	274	55	20
1959	79	135	214	94	307	64	21
1960	84	146	230	104	334	65	20
1961	87	149	235	108	344	69	20
1962	89	150	238	113	351	69	20
1963	90	152	243	115	358	71	20
1964	92	152	244	118	362	80	22
1965	92	151	243	125	368	85	23
1966	95	152	247	135	383	88	23
1967	99	155	254	136	390	83	21
1968	102	158	261	133	394	83	21

Source: Haritos, A., and D.G. Hildebrand, Civil Marine Infrastructure Annual Costs and Revenues, 1955-1969, Information Canada, Ottawa, 1973.

APPENDIX L

EXAMPLE OF THE U.S. BURDEN STUDY

REVENUE CONTRIBUTION TO BURDEN AND OTHER DATA BY COMMODITY CLASS, TERRITORIAL MOVEMENT AND TYPE OF CAR, 1969

(SOURCE OF TRAFFIC DATA – REVISED ONE-PERCENT WAYBILL SAMPLE)

ZABU MACHINERY AND EQUIPMENT

CONSTR, MINING & MATERIALS HANDLING EQUIPMENT